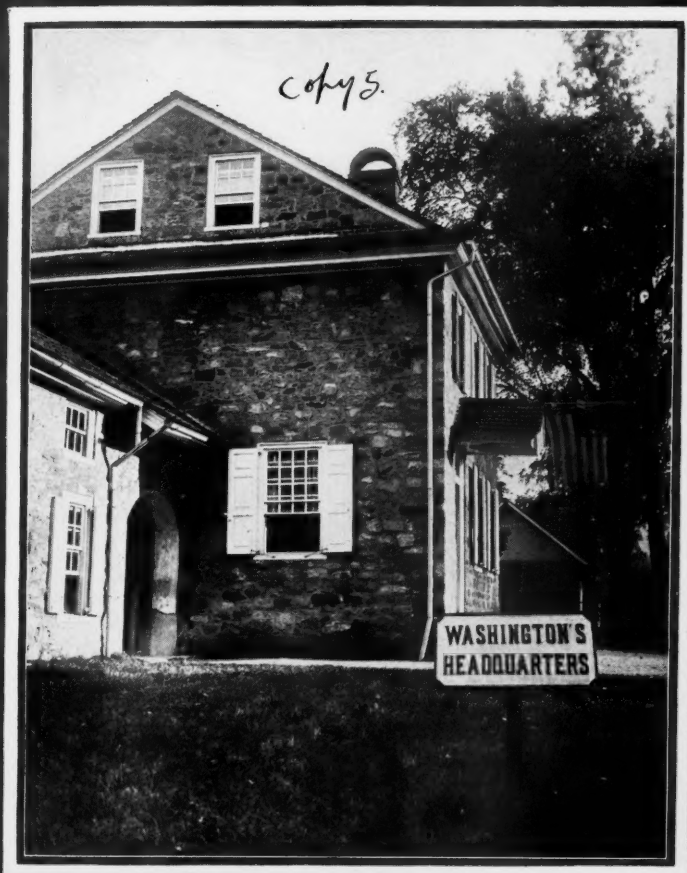


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THE DENTAL DIGEST



FEBRUARY-1925

VOL. XXXI, NO. 2

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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

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OUR COVER THIS MONTH

Valley Forge is a small village a few miles from Philadelphia, and holds a notable place in our nation's history as the location where Washington and his army of 11,000 men went into winter quarters after the occupancy of Philadelphia by the British. In 1893 the Pennsylvania legislature took steps to acquire and preserve Valley Forge as a public park, but little was done to effect anything definite until 1903 when a second effort partly accomplished the desired result.

The old stone house you see on our cover was used for Washington's headquarters, and is today in a fairly good state of preservation. The selection of this place and the manner of its occupation was one of the tragedies of Washington's career. But being a great General and Patriot he held his worn-out army in readiness to meet all the vicissitudes that confronted him. To enormous energy Washington added the cool brain of the man of business, an inflexible sense of justice and an indomitable will. He well deserves the title of the "Father of his Country." Napoleon said of Washington: "Posterity will talk of him with reverence as the founder of a great nation, when my name shall be lost in the vortex of revolutions."

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THE DENTAL DIGEST

Vol. XXXI

FEBRUARY, 1925

No. 2

The Principles and Practice of Administering Nitrous Oxide—Oxygen and Ethylene Oxygen*

(First Article)

(EDITOR'S NOTE.—The editor had the pleasure of attending this clinic. At his request Dr. Heidbrink afterward extended the instructions which he gave before and during the clinic to form a series of articles which, taken together, furnish the anesthetist with a handbook of instructions on the principles and practice of inducing and maintaining anesthesia with nitrous oxide and oxygen and with ethylene and oxygen. In assisting in the preparation of these notes the editor has had particularly in mind the facts that many readers of THE DENTAL DIGEST are situated far from the centers of special instruction, as in countries where postgraduate courses are rare or unknown, and that the information should be sufficiently condensed and complete to enable these men to master the art of inducing and maintaining anesthesia.)

The technic underlying these articles is based on the principle that the quietest, the safest and the most comfortable anesthesia for both patient and operator can be effected only when the operator knows at what rate the gases are flowing, what proportions are being used and the time during which they are being administered.

If the anesthetic be administered too rapidly (as in pure nitrous oxide induction), patients may exhibit the characteristic symptoms of anesthesia—color, jerky breathing and suppression of the reflexes, which usually serve as guides before the nerve centers affected by dental operations are anesthetized. If dental operations are performed while patients are in this condition, they will feel pain. Anesthesia of this character is not well established. A breath of air or oxygen may dissipate it, and the patient may revive immediately. If the absorption of the anesthetic by the centers controlling the symptoms of anesthesia be retarded until the anesthetic is absorbed also by the centers which report pain in dental operations, the operation will be painless. With the proper apparatus and technic anesthesia of this character may be maintained for most patients practically as long as the operator desires.

Experience shows that the only satisfactory method of retarding

*This series of papers is based on a clinic given before the Florida Dental Anesthetists' Society at Orlando, Florida, December 17, 1924, by J. A. Heidbrink, D.D.S., Minneapolis, Minn.

the absorption of the anesthetic by the centers which control the visible symptoms until it is absorbed also by the centers reporting pain from the dental area is to give a known proportion of oxygen with the nitrous oxide for a definite time at the beginning of the administration. The length of the induction period is controlled by the length of time that oxygen is given with the nitrous oxide. If the oxygen is given continuously throughout the induction period, the induction is unduly prolonged.

THE PRINCIPLES OF THE APPLIANCE

Anesthetists differ among themselves as to the form which an appliance for inducing anesthesia should have. Regardless of the form of the appliance, it should enable the operator to use two or more gases either singly or in any desired combination. There should be some means of indicating accurately the rate of flow of each gas, and the indicators should be continuously visible to the anesthetist during the period involved in inducing and maintaining anesthesia.

It is of the utmost importance that the inhalers be so formed as to exclude all air from the mouth and nose during induction and from the nose during the carrying period. There must be some means for patients who cannot or will not breathe through the nose to inhale the anesthetic gases through the mouth during induction. This is best provided by an inhaler which covers the mouth and is attached by a separate tube to the supply chamber for the mixed gases. The technic for carrying persistent mouth-breathers will be given in a future article.

If there is to be uniformity in the application of a technic to different cases, it is essential that the anesthetist should time the period during which he administers oxygen with the nitrous oxide at the beginning of the induction. This timing can be best accomplished by means of a stop watch so placed as to be continuously visible to the anesthetist, which can be started when the administration is begun.

This little device for timing the induction period may make possible a more correct diagnosis of the susceptibility or abnormality of the patient than the anesthetist can make either by visual observation or by any of the methods usually employed. For instance, if the patient becomes anesthetized in less than the average time, the anesthetist will know that the patient is of a particularly susceptible type which usually requires more than the average percentage of oxygen during the period of anesthesia. If, on the other hand, more than the average time is required to induce anesthesia, he will know that the patient is of the more resistant or difficult type and will be able to form a fairly accurate opinion of the degree of resistance or difficulty. Dr. Heidbrink has timed the induction period in more than

twenty-five thousand anesthetics and after this experience the timing method frequently indicates difficulties which he has failed to detect by visual examination and affords information of great value in the carrying period.

ADVANTAGES OF NITROUS OXIDE AND OXYGEN AS AN ANESTHETIC

Nitrous oxide and oxygen is the safest general anesthetic. No sick person is so good an anesthetic risk as the same person would be if he were well, but if an anesthetic must be given to a sick person, nitrous oxide and oxygen is safer than any other general anesthetic. Dr. Heidbrink believes that with a good technic nitrous oxide can be administered to many persons for whom any other anesthetic might be unfavorable or contra-indicated, such as tubercular patients, women in advanced pregnancy, nursing mothers and others. It is generally conceded that no disease is a barrier to the successful administration of nitrous oxide and oxygen.

Nitrous oxide does not destroy either normal or diseased tissues, as has been shown by experiments upon tuberculous animals who have been subjected to 85% nitrous oxide and 15% oxygen for forty-eight hours.

Nitrous oxide and oxygen places no such burden upon the eliminating organs as do many other anesthetics. It enters the blood as nitrous oxide, produces its anesthetic effect as nitrous oxide, and is eliminated by the lungs as nitrous oxide, elimination being complete within a few minutes after administration is stopped.

With a good technic anesthesia is quickly and comfortably induced and may be maintained for almost any desired time, and the patient recovers promptly with a minimum of discomfort. The symptoms are pronounced and easily interpreted, so that dangerously deep stages of anesthesia may be avoided.

CONTRA-INDICATIONS FOR NITROUS OXIDE AND OXYGEN

As will be seen from the foregoing, there are relatively few contra-indications against the use of nitrous oxide and oxygen on account of the physical condition of patients. Patients who present a very narrow anesthesia range will be unfavorable patients for nitrous oxide and oxygen anesthesia unless their anesthesia range can be widened by premedication, as will be more fully explained in the article dealing with premedication.

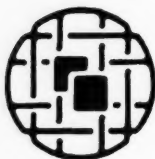
A strong objection by the patient to taking a general anesthetic is a contra-indication for nitrous oxide and oxygen, if there is no reason why a local anesthetic cannot be given.

When an operation is of such character that the operator can work better in a bloodless field, such as follows the use of a properly given

local anesthetic, or he desires to work under conditions which can be maintained only with a local anesthetic, as when dissecting out the tip of a root or in an extended operation for impaction, the general anesthetic may be contra-indicated for operative reasons. Some patients insist upon taking a general anesthetic for an operation in which a bloodless field is desirable from the operative standpoint. In such cases the local anesthetic may be injected in the usual manner immediately after anesthesia with nitrous oxide and oxygen is established. As the local anesthetic takes effect, the general anesthesia may be lightened to a degree just sufficient to control the patient's psychic activities.

Deaths have occurred during nitrous oxide and oxygen anesthesia, but there has always been such difficulty in clearly defining the cause of death as to leave the anesthetist free to attribute it to pathological or operative conditions and to permit the operator to ascribe it to the anesthetic. Dr. Heidbrink believes that the only cause for death from the administration of nitrous oxide and oxygen would be either that the anesthesia was carried to a stage which shut off breathing and the operator became terrified and could not re-establish it, or that the air passages were closed by operative or pathological conditions and the anesthetist was unable to reopen them. Probably all such cases would have recovered promptly if air passages had been opened and air or oxygen allowed to enter the lungs. An effective method for opening the air passages in all cases will be described fully in the fourth article of this series.

(The second article of this series is expected to contain instructions for the administration of ethylene.)



Five Essentials to Successful Full Denture Service

By Russell W. Tench, D.D.S., New York, N. Y.

(Continued from January)

A RELATION OF THE TEETH IN EACH DENTURE TO THE UNDERLYING RIDGE THAT WILL REDUCE LEVERAGE TO THE MINIMUM

To reduce leverage and insure stability in either denture, the teeth should be set so that their vertical axes are directly above the middle of the ridge, and so that their working surfaces are as near the surface of the ridge as is consistent with the development of a pleasing appearance.

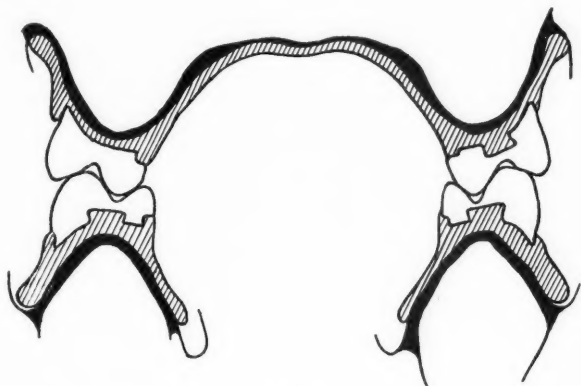


Fig. 16

Showing ideal placement of molars and bicusps in full dentures in central occlusion. Note that the mandibular molars are set close to the mandibular ridge and midway between the tongue and cheek zones.

The relation of all teeth to their supporting ridges is dependent upon esthetic requirements and the relative size of the maxillary and mandibular ridges. The maxillary denture, located on a non-moving member, is stationary and is subjected only to the unseating influence of the bucco-labial muscles. The mandibular denture may be subjected bucco-labially and lingually to displacing pressure by muscles attached to the mandible and by the tongue. This pressure is often magnified by the motion of the mandible in function.

The preponderance of factors that act to displace the mandibular denture all point to the desirability of giving the mechanical advantage

to this denture by setting each tooth midway over the mandibular ridge, and with the occlusal surfaces of all the mandibular teeth as close to the ridge as possible, as previously stated. (See Fig. 16.)

The mandibular molars and bicuspsids, together with the cheek and tongue muscles, combine to form a trough in which the food bolus is held for crushing against the maxillary molars and bicuspsids. Because of this they should be set nearly in a middle position between the tongue and cheek, that is, directly above the middle of the mandibular ridge.

The crushing force of mastication is exerted on each side in an upward and inward, and slightly backward, direction by the opposing planes of the buccal cusps of the mandibular molars and bicuspsids upon the planes of the lingual cusps of the maxillary molars and bicuspsids. The direction of this force tends to seat the maxillary denture and hence permits placing the maxillary molars and bicuspsids

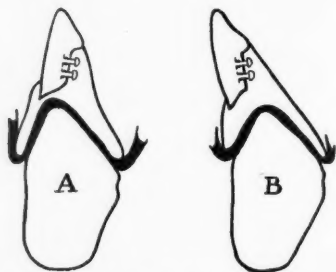


Fig. 17

Diagram of antero-posterior vertical section of mandibular denture and ridge in the incisor region. A—Mandibular incisor in position to minimize leverage. B—Mandibular incisor in unfavorable position.

slightly outside the maxillary ridge when necessary. This same force operates to unseat the mandibular denture and *does not* favor setting the mandibular molars and bicuspsids to the buccal of the middle of the mandibular ridge.

When the anterior mandibular teeth are set to the labial of the middle of the mandibular ridge (see Fig. 17), they are subjected to a lifting force by movement of the contracted lower lip.

Pictures on the left side of Figures 18, 19 and 20 show the result of setting the mandibular incisors in front of the ridge, and on the right side the result obtained by omitting a mandibular central so that the remaining incisors could be set on the ridge.

The anterior maxillary teeth in artificial dentures restore the full-

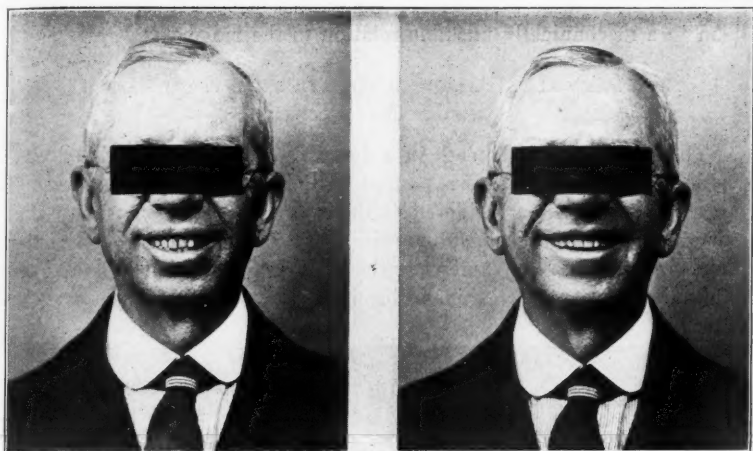


Fig. 18

Front view. Showing on right side result of setting mandibular incisors anterior to the ridge, and on left side result when mandibular incisors were set above the middle of the ridge.



Fig. 19

Same as Fig. 18, side view.

ness of the lip, adorn, light up the mouth, and aid in speech. They, therefore, have to be set to fulfil these functions, even when this puts them in a mechanically unstable relation to the ridge.

MECHANICALLY BALANCED RELATION OF EACH TOOTH
TO ITS ANTAGONIST

The relation of each tooth in a denture to its antagonist is of vital importance. The value to a patient of the application in practice of the essentials so far considered is dependent upon the harmony that exists between the movement required by the inclination of the cusp planes of the maxillary and mandibular molars and bicuspid and the habitual movement of the mandible itself.



Fig. 20

Same as 18 and 19, repose view.

Undue pressure may be transmitted to the ridges by dentures in use that will stimulate atrophy and result in a loss of retention unless there is harmony between the inclination and direction of movements of the mandible in mastication and the inclinations of all tooth cusp planes acting in contact during such movements.

When the mandible is in central occlusion, the lingual-facing cusp planes of the mandibular molars and bicuspid should be in contact with the buccal-facing cusp planes of the maxillary molars and bicuspid on both sides of the mouth. (See Fig. 21.)

This is important to the comfort of the patient and to the efficiency of the dentures. It is between these cusp planes that the food bolus is crushed in the act of trituration in mastication. A common mistake

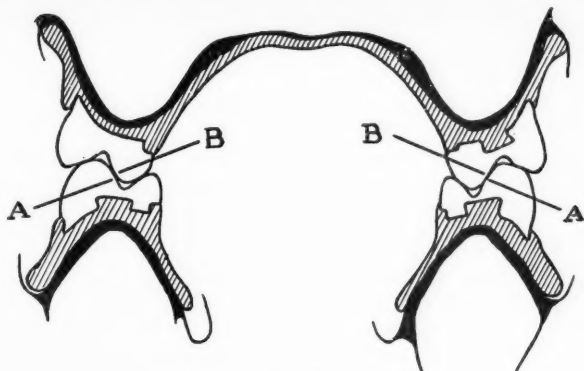


Fig. 21

Mandible in central occlusion position. Cross section showing correct contact of lingual cusp of maxillary molar (B), with buccal cusp of mandibular molar (A).

is to set the buccal and the lingual cusps to occlude at rest without establishing contact of the cusp planes mentioned. (See Fig. 22.)

Under such conditions, the teeth cannot assume a position of arrested motion when they are brought forcibly together in central occlusion; and a slight springing of the dentures occurs in the direction of the arrows (see Fig. 22) that is usually irritating to the patient. This incorrect arrangement reduces the masticating efficiency of the dentures by about fifty per cent.

The antero-posterior curve developed by the occlusal surfaces of the

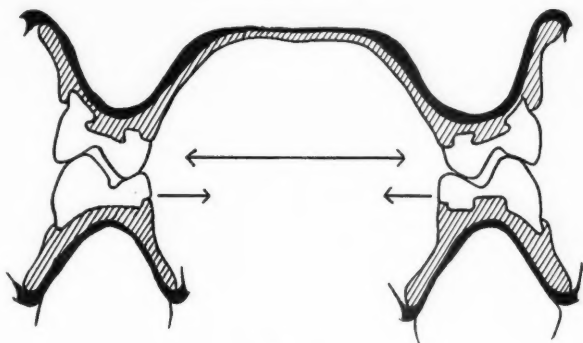


Fig. 22

Mandible in central occlusion. Mandibular molars set too far to the buccal, leaving space between lingual-facing inclined planes of mandibular molars and buccal-facing inclined planes of maxillary molars.

mandibular molars and bicuspid should be about parallel to the antero-posterior curve of the mandibular ridge. (See Fig. 23.) This will permit the thrust of mastication to be received against the mandibular ridge at right angles to its surface and increases the stability of the mandibular denture. Making this adjustment corresponds in many cases to developing an extreme curve of Spee, but conditions may be such as to favor no curve at all. If the maxillary ridge is quite flat, so that it presents no inclined planes to resist forward displacement, it will be necessary to decrease the curve to prevent such displacement.

When the mandibular denture is in balancing bite relation to the maxillary denture, contacts may be limited to cusps of those teeth anterior to the inclined posterior section of the mandibular ridge (see Fig. 23 d), usually the second mandibular bicuspid and first mandibular molar. This decreases friction and helps to reduce movement of the

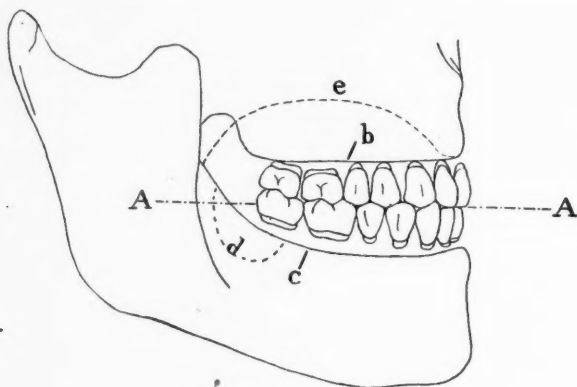


Fig. 23

A—Plane of occlusion line. b—Contour of crest of molar bicuspid section of maxillary ridge. c—Contour of crest of mandibular ridge. d—Inclined posterior section of mandibular ridge. e—Representing contour of vault. Note that the antero-posterior occlusal curve of the molars and bicuspid approximates the same curve of the mandibular ridge. The height of the palate and the prominence of maxillary tuberosities make this a favorable case for developing such a curve.

dentures in use. When the mandible is in the incising relation to the maxilla, the incisor teeth should come into contact and the inclined cusp planes of a majority of the molars and bicuspid should also stay in contact. (See Fig. 24.)

Having arranged the teeth to effect these important relations in an articulator imitating or reproducing the true masticating movements of the mandible, and having ground the cusps with copper carbo powder and glycerine into a balanced uniform bearing in the articulator, after the dentures are vulcanized, the final adjustment of the articula-

tion to the patient's habitual masticating movements may be effected by the patient by chewing on a mixture of copper carbo powder and vaseline. The idea of triturating the teeth of dentures into articulation in the mouth originated with Dr. G. V. Black. It should be employed to effect the final adjustment in all operations of whatever magnitude, involving the restoration of the masticating function by supplying substitutes for missing teeth. When an inaccuracy in the adjustment of the balancing articulation to the habitual mandibular movement of the patient exists, it will be noticed that there is a tendency of the maxillary denture to rotate somewhat during masticating actions. This is due to lack of parallelism between the inclines of the cusp planes of the balancing side and the inclination of the movement of the mandible. If an adjustment is not effected, the movement generated may soon cause atrophy and destroy the usefulness of the dentures.



Fig. 24

Balanced contact of cusps in incisive position.

To adjust the cusp planes to the patient's masticating movement, place a liberal quantity of copper carbo powder, mixed with either vaseline or a mineral jelly, on the occlusal surface of the molars and bicuspid of the right side and let the patient go through the movements of chewing on the left side, reapplying the paste frequently. The maxillary denture should be supported in position by grasping it in the bicuspid regions between the thumb and index finger. The grinding operation should continue until interferences are reduced and rotation movement has been eliminated. When the adjustment for one side is completed, the dentures are cleansed, and the opposite side must be treated similarly.

With rotation eliminated, the grinding mixture should be distributed upon the occlusal surfaces of all teeth; the patient should be directed to triturate, reproducing the movements of incisive, or any movement natural, between the incisive and masticating movements,

until all movements involving a sliding contact of teeth can be executed smoothly.

To facilitate the grinding operation and insure against destroying the conditions that are essential to a perfectly balanced bearing between the two dentures, with a small inverted cone-shaped stone relieve the central fossae and marginal ridges of each tooth where the tips of the cusps of the opposing teeth touch. (See Fig. 25 A-A.)

The importance of articulation in all dental operations involving restoration or improvement of the function of mastication is so great that when its significance is generally appreciated, some form of articulator, adaptable to the individual habitual masticating movements of each patient, will be in daily use in the office of every dentist whose ideal is to render truly ethical service to his patients. It is impossible to overemphasize this point.

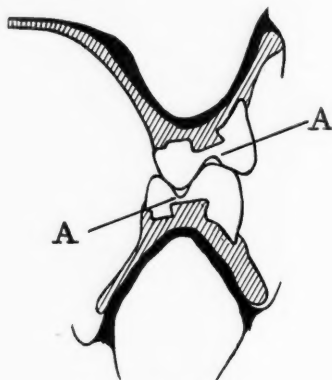


Fig. 25

A—Depression made in marginal ridges and central fossa of maxillary and mandibular molars and bicusps to facilitate grinding in the mouth.

The use of an anatomical articulator should be common practice where partial dentures, removable bridges and fixed bridges are constructed, and it is certain that it would often prove of value in orthodontia.

Success in any undertaking depends in the main upon a clear conception of all factors involved and upon intelligent application of this fundamental knowledge. This is no less true of denture construction than of any human endeavor. It is not a lucky choice of instruments or materials that makes the operator successful. Success comes from a desire to know and to excel and from intelligent application of information acquired.

116 Central Park South.

Oral Sepsis—From the Viewpoint of the Ophthalmologist*

By Arthur S. Tenner, M.D., New York, N. Y.

A few weeks ago an eye surgeon who was about to perform a cataract extraction remarked to a colleague who was present as a witness: "This patient on the table has a double cataract but only one operable eye. The other eye is sightless, has a retinal detachment and the iris is completely bound down with posterior synechia. A glance within his mouth discloses quite sufficient cause for the violent iritis which he must have suffered at one time and which has destroyed the sight of that eye."

I call your attention to the significant phrase "a glance within his mouth." It excited no comment from the ophthalmologists assembled in the operating room, yet fifteen or ten or even fewer years ago such an attempt to associate oral sepsis with eye disease would have been received with skepticism or even derision. This association and relation have been demonstrated clinically so often that the mere recital of illustrative cases would be wasteful and useless. I shall, however, try to enter into the nature of this relationship anatomically from the ophthalmological point of view.

The planum orbitale, forming part of the floor of the orbit, is also the superior external part of the superior maxilla. Following it forward over the inferior orbital ridge, we find it continuous with the anterior surface of the maxillary bone, and thus with the alveolar processes. The periosteum spreads from the alveolar edges, where it merges into the periodontium, over the facial aspect of the superior maxilla and thence continues on over as the periosteum of the floor of the orbit. Here we have our bony and periosteal association.

The arterial supply of the periosteum and tissues of the lower half of the orbit comes from branches of the maxillary artery. The alveolar arteries, superior anterior and superior posterior, are likewise branches of the maxillary artery.

The alveolar veins join the veins of the periosteum and mucous membrane of the maxillary sinus. These anastomose through the bony wall of the sinus with the facial and orbital veins. They bend through the bone, usually at a sharp angle, and, in case of slow circulation, stasis may occur, and even thrombosis. If root abscesses or periodontal inflammation is present, such thrombi may become infected, and we have on our hands a case of orbital thrombosis or orbital cellulitis,

*The fifth and last of a series of papers under the general heading "A Symposium on Oral Sepsis from the Physician's Viewpoint," given before the Pathodontia Section, First District Dental Society, New York, February 19, 1923.

conditions threatening not only the integrity of the eye but also the brain and, therefore, even life.

Furthermore, there are veins, branches of the ophthalmo-facial vein, which penetrate directly from the antrum through the floor of the orbit and join the orbital veins. In the periosteum of the facial surface of the superior maxilla and the alveolar periosteum are veins that empty into the anterior facial vein. This has direct branches to the superior and inferior ophthalmic vein. Accordingly, we have a direct venous connection between the alveolar processes and the orbit.

The lymphatics of the eye and dental system empty into the superficial and deep facial lymphatics. Some of these spread from the inferior orbital ridge over the face down to the inferior maxilla and collect in the submaxillary gland. Others collect in the preauricular gland. In lid and conjunctival infections of the eye it is this gland that is swollen and tender.

Bearing these anatomical associations in mind—that of the periodontium with the periosteum of the orbit, the vascular association, arterial and venous, and the lymphatic relationship as well—it is not surprising that pathological conditions of the eye dependent on dental disease arise. Rather, the surprising thing is that they do not occur more frequently.

It is beyond the limits of an article of this nature to describe the eye anatomically or enter into all the theoretic possibilities of the association of the eye and dental system pathologically, hence only the most common and most striking cases will be considered.

Inflammatory conditions of the most superficial parts of the eye are usually caused by direct infection. By "the most superficial parts of the eye" are meant the eyelids and the conjunctiva, the latter being the mucous membrane which, as its name implies, joins the lid and eyeball; that is, it lines the inner surface of the lids and is reflected on the eye ball covering the anterior surface of the latter. One can readily understand how a periodontitis may spread, producing an edema of the cheek, lids and conjunctiva. Here we have pathologically a mixture of inflammation and transudation.

One such case reported by Gutman (*Deutsche Med. Wochensh.*, No. 20, 1921) is so striking that it must be mentioned in detail. A man of 28 had a chronic fistula at the upper left central incisor. By means of a root resection and treatment the fistula was healed. Five months later he developed an edema of the lower part of the conjunctiva of the left eye. The swelling was about a half millimeter in height and was separated by a sharp line of demarcation from the conjunctiva of the upper half of the eyeball, which was of a normal paleness. The edema caused little discomfort but persisted for several weeks unchanged. Suddenly the patient suffered pain over the

left upper incisors. The dentist found a small discharging fistula between the central and lateral incisors. An x-ray disclosed the absence of the root tip of the middle incisor, absorption of the alveola, septum and gangrene of the root of the lateral incisor. A root resection of this tooth resulted in rapid healing of the fistula. At the same time the edema of the left eye began to subside and soon disappeared, nor has there been any recurrence.

Conjunctivitis Eczematosa or Phlyctenosa. This is a disease of childhood and, for the ophthalmologist, most troublesome and difficult to cure. It occurs commonly in so-called scrofulous children, though it has not by any means satisfactorily proved that it is a tuberculous condition. Children thus afflicted usually suffer, in addition, from eczema of the neighboring skin, excoriating discharge from the nostrils, lymphatic gland hyperplasia and hypertrophied tonsils and adenoids.

But dental caries as a causative factor or even as an agent prolonging the existence of a phlyctenular conjunctivitis has been generally overlooked by ophthalmologists. One can readily see how the infection from the mouth can be directly carried to the eyes. The child with toothache inserts his fingers in his mouth and then carries his germ-laden fingers to his eyes, previously irritated and congested by weeping. In this way not only can an eczematous conjunctivitis arise, but one already existent becomes reinfected and unduly prolonged.

The writer is convinced that if, in addition to the usual therapeutic measures, ophthalmologists in these cases of phlyctenular conjunctivitis insisted on a dental examination, including a roentgen examination to be followed by the institution of dental asepsis, they would be successful in markedly shortening the duration of this persistent condition. An example follows.

An eighteen-year-old girl suffered, in spite of active treatment, for many weeks with an eczematous conjunctivitis of both eyes. None of the usual causes such as scrofula, hypertrophied tonsils or rhinitis was present. Examination of the mouth disclosed an advanced caries of the upper bicuspids of both sides. Extraction of these was followed by a speedy cure of the conjunctivitis.

Bone abscesses of the anterior aspect of the superior maxilla of dental origin are not uncommon. These arise from abscesses of the front teeth, especially in the lateral incisor and the cuspid, the pus following the path of least resistance through the spongy bone. Such abscesses may remain latent for years, then cause great pain in the orbit, and, as there is no swelling or fluctuation, the diagnosis is made only with difficulty. Finally they break through the skin, frequently at the inner angle of the eye. Here they are apt to be confused with a fistula of the tear-sac.

Orbital periostitis may arise from direct extension of an alveolar periostitis.

Of more serious moment is the occurrence of orbital cellulitis or abscess, because not only the integrity of the eye but life itself is threatened through meningitis, thrombosis of the cavernous sinus or brain abscess. Such cases may arise before or following extraction.

The antrum of Highmore may not be involved, but usually is, so that orbital abscess is usually the third step from dental caries.

Of still more serious import, because always followed by lethal exit, are cases of septic thrombosis of the cavernous sinus. These occur after extraction and are due to secondary infections of the alveolar veins. An infected thrombus of an alveolar vein breaking off into the circulation can easily be carried to the ophthalmic vein and thence to the cavernous sinus, as previously pointed out in this article.

Two cases occurred in the practice of one dentist so that the asepsis of that man is under grave suspicion.

The direct connection of oral sepsis and the inflammatory conditions of the eye and surrounding parts, as previously related, is readily recognized, but the connection in cases of inflammation of the eyeball itself is more debatable.

The eyeball consists of three tunics. The outer tunic consists of cornea and sclera. If we strip off the cornea and sclera from a globe we have left a dark-colored round mass hanging from the optic nerve, which from its resemblance to a grape is called the uvea. This is the middle tunic, consisting of iris, ciliary body and choroid.

Pathologically we may have an iritis, a cyclitis, a choroiditis, or a combination of two of these, as an irido-cyclitis, or, if the whole uveal tract is involved, an uveitis. It is especially of such inflammations that the author wishes to speak.

The etiology of so many such cases is obscure, and therefore they offer a fertile field for discussion. The obscurity of some of these cases might be cleared up if the ophthalmologist was more ready to recognize that in one case two causes might be acting. For example, in a case of syphilis there might be a focal infection, such as oral sepsis, acting in combination. I saw one such case the other day. The Wasserman was 4+, but there had been no improvement under anti-luetic treatment. The spectacle his mouth presented would, I am sure, have stricken the members of this organization with horror. Every tooth in his mouth was gold-crowned. X-rays showed a number of apical abscesses and much rarefaction of the alveolar processes. I am certain that after proper oral treatment is carried out other therapeutic measures will be more effective. The lesson taught by such cases is important. Oral treatment may fail in a given case because it is not the sole cause but merely a contributory factor.

The explanation of the action of a focal infection in causing an uveitis is by no means simple. Some have tried to explain it on the ground of the infecting organism having a special predilection for a certain part of the body such as the uveal tract. Thus Rosenow (*Journal of Dental Research*, Vol. 1, No. 3, 1919) says: "Focal infections are no longer to be looked on merely as a place of entrance of bacteria but as a place where conditions are favorable for them to acquire the properties which give them a wide range of affinities for various structures." This statement, however, must be noted as conjecture rather than proof.

Dr. de Schwenitz, quoting a verbal statement of John Kolmer, says: "The organisms in a pus focus are taken up by the leucocytes which, acting as phagocytes, circulate in the blood stream and settle down in some part of the body such as the uvea for which they have a predilection." It certainly seems probable that phagocytosis does play an important rôle in the conveying of organisms from a focus to another part of the body.

The second question that arises is: Why do organisms from a pus focus produce a non-suppurative inflammation like an uveitis? Dr. de Schwenitz says that in the circulating blood the infecting organisms are exposed to the bactericidal effect of the blood, and their virulence is thereby diminished. The following case, which occurred recently in my own hospital practice, is cited because of its direct bearing on this subject.

A little girl of four years of age was suffering from a general septic infection. The meningococcus was recovered from the blood. Under very active treatment of meningococcal serum administered intraspinally, intravenously and intramuscularly, she began to improve. However, she then developed an uveitis in one eye. There was a large fibrinous exudate in the vitreous, plainly visible through the pupil.

Now, such cases usually pursue a slow course, then quiet down, leaving a sightless and somewhat shrunken globe. Therefore a good prognosis was given, at least as far as preservation of an eyeball was concerned. However, three days later the fibrinous exudate was replaced by pus, which filled even the anterior chamber, and I eviscerated the eye.

Here we have a case of a bacteremia producing first a non-suppurative uveitis which later became a purulent uveitis or a panophthalmitis. At the beginning of the uveitis the circulating blood was full of antibodies, due in the main to the injection of the serum. The production, then, of a non-suppurative uveitis may be explained by the theory previously mentioned, viz., that the germicidal effect of the blood reduces the virulence of the organism. But this does not explain the later breaking-down of the exudate into pus. A better explanation, it seems to the writer, is that there exists in the uvea itself the ability

to produce protective substances which in an ordinary sense are sufficient to reduce the virulence of organisms reaching the eye from a pus focus, and which did succeed at first in this case but later failed, owing to inability to produce antibodies in sufficient amounts to neutralize an organism present in great numbers and of a great virulence.

Granting, then, that a pus focus may produce a non-suppurative inflammation, one may conclude that oral sepsis is a possible cause of uveitis.

Among many cases I have treated for uveitis where dental sepsis was the etiologic factor, two in my opinion stand out as clinical evidence of the highest sort in view of the fact that in each of these cases previous treatment had been tried and had failed and also tests and examinations had been made to eliminate other possible causes.

Case 1. Mrs. B., aged 25, eye violently inflamed for two days when she came to the clinic. The eye presented all the symptoms of an iridocyclitis of a severe nature. The most striking sign was the presence of numerous large gray mutton-suet deposits on Descemet's membrane. After two weeks' treatment, while the violence of the inflammation had abated, there was no change in the condition of the eye. One of my colleagues was quite certain that this was a tuberculous eye. The very day that he saw her and expressed that opinion the eye began to clear up, six hours after the extraction of four teeth. The patient came running in great glee to tell me that her eye, which had been blind, now could distinguish the headlines in the newspaper. From that day absorption of the deposits went on steadily, and the eye eventually cleared up completely with the restoration of normal vision.

Case 2. This case is equally striking. Mrs. McC., private patient, aged 65, had been treated for three months for an uveitis by a prominent ophthalmologist who believed the source of the trouble was gastrointestinal and had referred her to a specialist of these diseases. When she came to me, I found a chronic uveitis with a few deposits of Descemet's membrane, a large posterior synechia and dense opacities in the vitreous. Everything was negative except her oral cavity, and this was not very suspicious as she had only four teeth left, all lowers, and had been wearing a plate of uppers for years. However, an x-ray showed retained roots (four in number) in her upper jaw, which were extracted after incision. Forty-eight hours after the operation the spots on Descemet's membrane disappeared completely, the posterior synechia lessened in size and eventually also entirely disappeared. The floating opacities of the vitreous remained, however, resisting all treatment. I feel certain that the long delay of at least three months accounted for this and that had the oral treatment been instituted at the inception of her uveitis, the floating opacities of the vitreous would also have disappeared.

70 East 56th St.

A Picture History of Dentistry

1750-1790

By H. H. Manchester, New York, N. Y.

A remarkable detail in the care of the teeth throughout the 18th century was the peculiar kind of toothbrush then in use. This was the vegetable toothbrush or so-called "Dentissick Root." It was made from the root of the marshmallow. After being partially dried, it was fried in a mixture of rectified spirits, dragon's blood and conserve of roses until hard. Then one end was pounded with a hammer in order to open the fibers in the form of a primitive brush.



A French traveling dentist of the 18th Century, by J. H. Touze

As a matter of fact, toothbrushes made from bristles do not appear in advertisements or pictures until the beginning of the 19th century, though paint brushes of that material were known to the ancient Egyptians. Toothbrushes of horse hair, however, must have been known because they were objected to by Fauchard, but they were surely not at all common.

As for the dentifrices, they were as varied, if we may judge from the recipes, as those of today. A highly recommended formula ran as follows: "Take 4 oz. of coral, reduced to an impalpable powder; 8 oz. of very light Armenian bole, and 1 oz. of gum myrrh which has been well pulverized. Mix all together and sift twice." Sometimes old broken jars of pottery were pounded up in place of the coral.

The advertisements for the dentifrices rived in enthusiasm, though not in art, those of today. One of these runs in part: "The Incomparable Powder for cleaning the Teeth, which has given so great satisfaction to most of the nobility and gentry of England. It . . . effectually preserves them from Rotting or Decaying, continuing them sound to exceeding Old Age. It . . . kills Worms at the Roots



The dentist in the helmet, by I. J. Willer (1717-1807), Paris

of the Teeth and thereby hinders the Tooth-Acke. It admirably fastens loose teeth . . . Price 1 shilling the box."

English dental practice was, nevertheless, improving. Bartolomeo Ruspini, an Italian who had learned dentistry on the Continent, came to England and introduced foreign methods there, some of which he explained in 1768 in his book, *The Treatment of the Teeth*. Altogether he practiced in England some thirty years.

Meanwhile the profession of dentistry was much advanced in repute in England through the encouragement of the celebrated surgeon,

John Hunter. In his book on surgery published in 1771 Hunter had quite a bit to say on dentistry. He made experiments for himself on the transplantation of teeth in animals and found it possible. This helped to bring in the practice of transplantation, and often dentists offered to buy from needy individuals sound teeth which were pulled out and at once reset in a wealthier client. The practice became so common that it was caricatured by Rowlandson, the well-known English artist.

Hunter's other ideas concerning dentistry were not so important. He thought caries not communicable, insisted on entirely destroying a diseased pulp before filling, preferred lead to gold on account of its cheapness and favored the straightening of crooked teeth.



An Italian dentist, by Maggioto (1750-1805)

Somewhat in opposition to Hunter, Benjamin Hill about 1783 pointed out the danger from contagious maladies in transplanting teeth.

On the Continent, in the meantime, dentistry was becoming more proficient in the hands of professional operators, a number of whom published accounts of their work. In France, Courtois in 1775 wrote a description of many cases. Foucon about the same time invented a compressor for stopping the flow of blood. In Germany, Buckling in 1782 wrote a guide for the extraction of teeth. Serre, who was born in Belgium but established himself first in Vienna and then in Berlin, became widely known and invented a conical screw for extracting roots

hollowed out by caries. Hirsch in Germany favored transplanting, but said that only one out of three teeth took root in their new setting. In Florence, Campani in 1786 published a practical treatise giving the approved practice of the time and illustrated with well-made engravings of the instruments.

In the third quarter of the 18th century there took place the epoch-making invention of porcelain teeth by Duchateau, who was a chemist near Paris and was much dissatisfied by the bad smell and color of the ivory denture which he wore. He made several attempts to make a copy of it in porcelain but was unsuccessful because of the contraction of the porcelain. He got Dubois de Chemant, the dentist, to aid



A German dentist, by Dietrich, 1767

him, and together they managed to fashion one which he could wear. In 1776 Duchateau reported the matter to the Royal Academy of Surgery at Paris, but did nothing further on it himself.

De Chemant, however, continued the experiments, gradually learning to limit the contraction from baking, to match colors and to fix the springs. In 1788 he published his pamphlet on mineral teeth, and in 1789 was given a patent which he maintained in spite of objections from Duchateau.

After the outbreak of the French Revolution, De Chemant emigrated to England and in 1791 was given the exclusive patent to make porcelain teeth there for fourteen years. His patent ran in part as follows:

"Composition for making artificial teeth of any shade or color.

"Fine white sand is well washed and dried, and alicont barilla mixed with it. This is placed in a furnace till purified, then pounded and sifted, mixed with clean dried marle, moistened in clear water and ground in a mill."

The impression was taken in soft wax, from which a cast was made in plaster of Paris, which became the mould for the mineral paste. For the enamel, lead and pewter were calcined together and powdered,



A dentist of Paris, by V. Auger (1787-1836)

and sand and barilla of alicont mixed in. All were put into a crucible, cleaned and pounded, then spermaceti, lead and borax added, and again put into the crucible. This was afterward pounded, mixed with red lead, moistened with water and ground.

The porcelain teeth as made by De Chemant seem to have been good for that period and did much toward stopping the practice of transplantation. When other dentists did the work, however, they had great difficulty in making the porcelain dentures fit, and it was long before they came into general use.

342 West 85th Street

Charles Albert Brackett

An Appreciation by a Colleague*

Dr. Charles A. Brackett has just completed his fiftieth year of active service to the Dental School of Harvard University, and at the opening of the present academic year he retires with the title of Professor of Oral Pathology, Emeritus.



CHARLES ALBERT BRACKETT, D.M.D. '73

Professor of Oral Pathology, Emeritus

Few professors in the University have had the distinction which belongs to Dr. Brackett of having given a half century of continuous service to teaching at Harvard. During this long time, through his teaching skill, by his modest manners and sterling character, he has so endeared himself to his former students that it was their instinctive desire that the form and features of this kindly man, whom they so

* From the Harvard Alumni Bulletin, Nov. 20, 1924.

love and respect, should be seen by coming generations of students. To this end the admirable portrait here reproduced has been painted; it will have a permanent place in the halls of the School, where it will be always treasured.

Ruskin said in one of his Oxford addresses that "the highest thing that art can do is to set before the world the true image of a noble being; it cannot do more than this, it ought never to do less." It is the opinion of the portrait committee that the artist, Mr. Alfred E. Smith, has embodied these feelings and these ideals in his portrait. He has certainly put on canvas the rugged yet gentle character of this son of the New England hills. The more one studies the likeness, the more one desires to know about this unselfish and public-spirited man, for it is men of this type who are the builders of the University.

He came of pioneering stock and was born in the little town of Lempster, N. H., January 2, 1850. To his bringing up on a farm he feels that he owes much. This contact with nature gave him self-reliance, sturdiness and thrift. Undoubtedly it was there that he learned the stern principles of hard work which have characterized his entire life. His zeal and capacity for work are prodigious, as was shown by his wide range of activities. After days of exhausting professional work he enjoyed laboring for the public good, night after night with but little sleep. Although he does not advise others to adopt his working methods, nevertheless they give striking evidence of what Professor William James calls "the hidden energies of man." His early education was obtained in the local district schools. In turn he became a teacher in them, and so served in the winters of 1866-1870. During these early teaching years he prepared himself for the Dental School, which he entered in 1871. In 1874 he was appointed instructor in Dental Therapeutics. The authorities, realizing his value, promoted him in 1880 to Assistant Professor of Dental Therapeutics, in 1883 to Professor of Dental Pathology and Therapeutics, in 1890 to Professor of Dental Pathology, in 1919 to Professor of Oral Pathology; in 1924 he was retired with the title of Professor of Oral Pathology, Emeritus.

Dr. Brackett has not only honored the Dental School with half a century of devoted service as a teacher; he has also served as a trusted adviser to three Deans, and during this long service he has done much toward spreading the fame of Harvard.

His teaching of pathology was recognized as masterly. Since he always adhered to the old-school lecture plan of teaching, he reached every student, and his brilliant thinking, remarkable ease of language and lovable qualities appealed to all; as in the case of every true teacher, his influence was greater than his subject. It was in the class-

room that the respect for him was awakened which in after years developed into remarkable devotion on the part of those whom he had taught.

The profession has bestowed upon him her highest honors: he has been president of the Harvard Dental Alumni Association, of the New England Dental Society, of the American Academy of Dental Science, of the Rhode Island State Board of Registration in Dentistry for nine years, and he has filled many other professional trusts.

Dr. Brackett is a many-sided man. While most of us, his fellow alumni, know him as a distinguished professor and skillful practitioner, the people of Newport, R. I., regard him also as a public-spirited citizen. He has been chosen as a trustee of and consulting dental surgeon to the Newport City Hospital; he has also been made president of the Newport Public Library; he is a director and vice-president of the Aquidneck National Bank and a director of the Newport Trust Co. He has served with distinction as a director in other public corporations and has been president of the Harvard Club of Rhode Island.

In 1905-06 he was chairman of a commission of twenty-five citizens that drafted a new charter for the city of Newport in which were incorporated a number of unique provisions. With little modification that charter is still in service. From the time of its adoption till the present, Dr. Brackett has served as a member of the Representative Council.

As a son of New England, Dr. Brackett has sustained its traditions as a citizen and a scholar. But more precious to us is his character. He is just, wise, of deep and simple faith, never suspected of self-interest by any man, ever courteous and ever ready to help a friend or to advance a worthy cause.

The placing in the near future of his portrait in the School for which and in which he has worked with such devotion is one tangible form of appreciation of his worth. Another and more far-reaching expression of gratitude will be the carrying forward of his work through endowment; it is accordingly proposed to raise the sum of \$100,000 to endow his department and to create the Charles A. Brackett Professorship of Oral Pathology. Those who are closest to him know how this tribute has touched his heart and how happy he is in the thought that his life's service is thus to go on into greater fulfillment through the lives of others.

There is no department of dental education in which the activities of a trained worker will do more for the continued advance of dental knowledge and for the broadening of its capacity for service to mankind than the study of the diseases of the mouth which have so deleterious an influence on general health.

President Lowell's approval of this movement is admirably expressed in a letter to Dean Miner, as follows:

"There is no more worthy way to honor a professor than by perpetuating his work by endowing the chair that he has held. Dr. Brackett has given to the Dental School the almost unparalleled length of service of fifty years. During many years he has received little or no remuneration, and yet himself subscribed liberally to the building fund when the new School was built. He has seen in his lifetime dentistry develop from something mainly an art into an important branch of the medical profession—a result to which his own labors have contributed. It is to be earnestly hoped that he may be commemorated by an endowment of a chair that will bear his name."

President-Emeritus Charles W. Eliot, who so well knows the man and the value of his work, writes thus of the project and of Dr. Brackett:

". . . I have had intimate knowledge all these years of the nature of Dr. Brackett's service to the School and to the dental profession. It has been characterized from beginning to end by perfect disinterestedness, skill in teaching and a strong influence for good on all his colleagues and all his students. He has greatly contributed to the reputation or standing of the dental profession in the community at large and with the medical profession. He has contributed strongly to the demonstration that preventive dentistry is an essential part of preventive medicine.

"A permanent endowment at the Dental School to bear his name will give to coming generations an invaluable lesson on the immortal worth of character, gentle manners, unselfishness and public spirit."



The March, 1925, Meeting of the First District Dental Society, New York

The First District Dental Society, State of New York, extends a cordial invitation to all members of the American Dental Association to attend its annual meeting on Monday, March 2, 1925. The program is being arranged to cover every phase of modern dental practice, upon which demonstration clinics and lectures will be presented.

It is desirable that members and guests who expect to attend this meeting register with the General Secretary, Miss E. M. Davies, 250 West 57th Street, New York, in order that suitable reservation may be made for attendance at the clinics.

The clinics will be held at the Infirmaries of Columbia University Dental School, New York College of Dentistry and other Hospitals and Infirmaries. The paper of the evening will be given at the Academy of Medicine at eight o'clock. Full detailed programs and cards of admission will be issued on application.

CLINICS—10 A. M. TO 5 P. M.

Progressive Clinic by the Ceramic Clinic Club, New York.

- Indications for the porcelain jacket crown; studying the case* Milton Cohen
- Preparation for the shoulder and shoulderless jacket crowns,*
Carlisle C. Bastian
- Impression-taking; die-making; model-mounting; the making of the matrix* Oscar J. Chase, Jr.
- The method of reproducing the natural tooth shades; packing, moulding, and carving of porcelain to individual case requirements* William J. Hoag
- The baking and staining of porcelain* . . . Chas. B. Mandelbaum
- Finishing the crown; cementation* Wm. A. Squires

PROSTHODONTIA

An improved technic which overcomes the inaccurate fit due to shrinkage of zinc and Babbitt's metal dies,

Russell W. Tench

- (1) *An improved bucco-lingual attachment.* (2) *Designing of saddles and partial dentures illustrated on models from practical cases* A. Gueft
- (1) *Demonstration in the reproduction of tooth forms.* (2) *Demonstration in the construction and completion of a simple Chayes bridge* M. Diamond

Closed-mouth impressions and anatomically articulated denturesM. Schechter

- (1) *The use of stones (a new precision abrasive) in cavity preparation.* (2) *The demonstration of new precision tools and vibrationless handpieces, which, in conjunction with the stones, will enable the dentist to prepare his cavities with the least annoyance to himself and the patient. The possibility of keeping these handpieces absolutely clean and sterile.* (3) *The demonstration of detailed steps in the construction of a Chayes movable, removable bridge, the use of the new student set of instruments for the purpose of paralleling the attachments for such bridgework,*

A. Roney, J. Metger, M. L. Perlman, E. Pickhardt

ORAL SURGERY AND EXODONTIA

FracturesTheodore Kaletsky

The importance of Roentgen examinations in oral diagnosis,
Sidney Riesner

Root amputations.....Herman L. Reiss

Malposed teeth.....M. L. Rosoff

The importance of pathological tests in oral diagnosis,

Nathaniel Freeman

OsteomyelitisTheodor Blum

Rational treatment of pulpless teeth.....E. Alan Lieban

Operation for the removal of dentigerous and follicular cysts under novocain anesthesia.....Leo Winter

Removal of impacted mandibular 3rd molar..David C. Baker

AlveolectomyN. Pollinger

The principles of instrumentation in surgery of the root surface.....John Oppie McCall

Unrupted and impacted teeth and post-operative treatment,
B. B. Palmer

Cases as they present for operation.....Leo Stern

Block anesthesia.....Harry M. Moss

Clinic cases as presented....Adolph Berger, Harry Dunning,
F. McCaffrey, Douglas Parker

General anesthesia (nitrous oxide and oxygen),

Harry M. Seldin

Removal of impacted mandibular 3rd molar..Charles Vetter

Selection of an anesthetic in oral surgery and exodontia,

Michael M. Moss

ORTHODONTIA

- Photographic technics, including facial and cranium measurements* Joseph Stahl
Plaster impression technic..... Harry E. Abelson
Clinical diagnosis of malocclusion..... Martin Dewey
Practical orthodontia cases under treatment,
 Martin Dewey, Josephine Abelson
Some typical malocclusions. Ralph Waldron, Julius Goldberg
Radiographic interpretation and early diagnosis of malocclusion James C. Allan

PATHODONTIA

Clinics will be given by the various members of the Pathodontia Section on the subjects of Root Canal Technic: (1) *Cultures of root canals*. (2) *Root canal filling*. (3) *Callahan and Rhein methods*.

ORAL HYGIENE

Demonstrations showing the work of the Oral Hygienist in the Public Schools and Clinics of New York City.

OFFICE ROUTINE

By the Educational and Efficiency Society for Dental Assistants.

DENTAL HISTOLOGY

- Practical and microscopical demonstration of the existence of an organic matrix in the enamel organ of the human tooth*..... Charles F. W. Bodecker
 Demonstrations by: J. W. Dickinson, Le Roy Hartman and Assistants, Ellison Hillyer and Assistants.

SCIENTIFIC SESSION—8 P. M.

The essayist of the evening will be Herman E. S. Chayes, whose paper is entitled *The Practical Solution of Difficult Dental Problems*. This paper will be read at the Academy of Medicine, 17 West 43rd Street, New York City.

SYNOPSIS OF DR. CHAYES'S PAPER

The plan, the starting point, the destination. The means to the end. The mathematical factor. The biologic factor, as expressed in the neural and nutritional needs of the case. The physiological factor. The anatomical factor. The hygienic factor. The integration of all the

factors in their proper interplay to produce an acceptable complement to the remaining dental organs in the case to be restored. Illustrated with lantern slides, radiograms and original drawings.

Formal discussion,

Charles Vetter, M. Diamond, R. Ottolengui

Executive Committee,

LEWIS K. MOBLEY,

JAMES C. ALLAN,

ARMIN WALD, *Chairman.*

Dr. Frank Billings Honored by the American Stomatological Association

At the last meeting of the American Stomatological Association Frank Billings, M.D., Sc.D., LL.D., was elected Honorary Member of the Association. Dr. Billings was Dean and Professor of Medicine at the Rush Medical College, Chicago, and Professor of Physical Diagnosis in the Medical School at Northwestern University. He is a non-resident Fellow of the College of Physicians, Philadelphia, and a member of leading American medical societies. Dr. Billings was a pioneer in the field of focal infection, and his researches are well known to the medical and dental professions. In particular, his contributions to the study of stomatological infections have served as a stimulus in the growth of the American stomatological movement. Recently he has retired from active practice.

John Alexander Williams

As this issue of THE DENTAL DIGEST goes to press we are in receipt of the sad news of the death of John Alexander (better known as "Jack") Williams, vice president of the Williams Gold Refining Company, which occurred January 8, 1925.

Jack Williams was one of the best known and most popular men in the dental trade, and his early passing will be mourned by thousands of friends in the dental profession and dental trade.

Mr. Williams was born in Nanimo, British Columbia, August 15,



This picture of Jack Williams shows him at the wheel of one of his winning motor boats, the sport he loved above all others.

1893, the son of Alexander D. and Eva May Williams. When the Williams Gold Refining Company was established by his father, Jack Williams became vice-president of the Company and in that capacity traveled all over the world as representative of his concern.

Jack was an ardent sportsman and big game hunter and owner and pilot of fast motor boats, with which he won practically every event in his class in which he entered, including Championships at Miami,

Florida, and Havana, Cuba, the E. R. Thomas Trophy and the Interstate Championship on the Great Lakes last summer.

Mr. Williams was a prominent clubman in Buffalo, a Scottish Rite Mason, a Shriner, and a member of Phi Gamma Delta fraternity. During the World War he served as lieutenant, junior grade, naval aviation service.

Besides his parents, Mr. Williams is survived by a brother, Reginald V. Williams.

Press Report Regarding Copper Amalgam

The University of Toronto and the Royal College of Dental Surgeons of Ontario wish to state that they disclaim any knowledge of or responsibility for the statements recently made in the public press regarding the merits of copper amalgam as a root canal filling, and direct attention to the regular dental professional channels for information.

December Meeting

SECOND DISTRICT DENTAL SOCIETY OF NEW YORK

(This report is neither official nor complete. It represents the impressions made by the speaker on one of the audience.)

The title of the paper by Dr. Arthur Hopewell-Smith, Sc.D., L.R.C.P., M.R.G.S., the essayist of the evening, was *Adventitious Dentines and Infection of the Dental Pulp*. The subject was treated from an original point of view.

USUAL ANATOMICAL SOURCES OF BACTERIAL INVASION OF THE DENTAL PULP

Dr. Hopewell-Smith concluded that since the pulp is immediately surrounded by dentine and as dentine is a tubular structure, it is evident that this bacterial invasion of the organ is via the dentinal tubules. Cementum is not directly associated with the pulp even at the apical foramen.

Lantern slides showing photomicrographs of sections demonstrated how the tubes of dentine are adapted for rapid and complete infection, especially those of the coronal region, due to the enlargement of their lumina and the decrease in branches and branchlets as compared with those of the root. The interglobular spaces between the amelo-dentinal junction offer extensive access for the proliferation of bacteria. The contents of the tubes are particularly susceptible to bacterial growth. The process of bacterial invasion is encouraged by the vast multitude of tubes and branches, which may vary from 60,000 to 3,760,000 per sq. mm. Infection of the pulp occurs prior to, as well as during, actual exposure in deep-seated cavities. Dr. Hopewell-Smith claims that it is impossible for infection to occur through normal cementum. There is no chain of protoplasmic material passing from the pulp through the dentinal tubes to the alveolar dental pericementum externally, as there is no lacunae and canaliculi in normal cementum.

A homogeneous layer of clear structureless dentine extends between granular layers on the inside and cementum on the outside, precluding the possibility of passage of agents from within or without.

Doubt was expressed as to the possibility of infection of the pulp through the arterioles, venules and capillaries. Microorganism carried through the blood stream has never been demonstrated.

SECONDARY DENTINE AND THE VARIOUS TYPES OF ADVENTITIOUS DENTINE

The term "Secondary Dentine" is restricted to the dentine produced during attrition of enamel and dentine. Secondary dentine also is found formed in the walls of pulp canals of deciduous teeth and growing teeth of rodents.

"Adventitious Dentine" is described as tissue of a pathological nature which has been added to the primary and first-formed dentine during caries and in erosion. Photomicrographs of six varieties were shown: areolar, cellular, fibrillar, hyaline, laminar and tubular.

The use of antiseptic sterilizing agents is strongly indicated prior to the insertion of fillings or inlays for the purpose of inhibiting growth and actually destroying bacteria involved in the carious process. If the microorganisms concerned in the carious process are of the anaerobic or facultative anaerobic type, death of the pulp will ensue unless destroyed by repeated and thorough sterilization.

Once Putrescent, Always Putrescent*

An infection in a superficial body tissue can usually be reached and eradicated without surgical interference. Deeper-seated infections may sometimes be reached by surgery, but it is doubtful if an infection in the dentine or cementum of a tooth can be reached and eradicated by any form of medication.

So deeply seated is infection in tooth substance that when sections of infected tooth tissue, out of the mouth, were placed in large quantities of germicides usually regarded as efficient, the tissue was not disinfected, even in strengths of germicides that could not be used in the mouth, with the exception of formaline in all strengths, iodine 5% and chlorophenol.

Few of the germicides were able to maintain sterility in a cotton point placed in an infected canal, with no periapical infection present. The only germicide which maintained sterility in the points for a period of forty-eight hours is Dichloramin-T 15%. Practically two-thirds of the points which had been soaked with concentrated formalin were infected.

When the apex of the infected root was placed, unsealed, in an infected fluid representing a periapical infection, most of the germicide-soaked canal points were infected in five hours, nearly all in twenty-four hours, and all in forty-eight hours.

After experiments to determine the efficiency of germicides were completed, the teeth were opened longitudinally, under proper conditions, and tests were made to determine the sterility of the dentine and cementum. All of the tooth structures showed an infected condition, except those treated with 93% formalin.

*The material for this article is taken from *Dental Infections*, by Weston A. Price, D.D.S., M.S., F.A.C.D.

Other experiments show that the effect of the germicides may be to alter greatly the character of the organisms, so that they will grow only under certain conditions difficult to establish in a laboratory. It is thought that many negative results in former experiments have been due to insufficient recognition of this fact or the inability to establish the conditions. Some of the germicides greatly delay and retard organism growth.

Sterile teeth implanted under the skin of a rabbit produce no effect. Some infected teeth produce a slight effect *because* the rabbit is able to encapsulate the tooth. Sometimes an infected tooth kills a rabbit in a few days.

A tooth which had killed a rabbit in four days was opened through the crown, as it would be in the mouth, the canals cleansed and a dressing of iodine and creosote placed in it. The tooth was then implanted and killed a rabbit in four days. The tooth was again opened and treated with iodine and creosote. It was implanted in another rabbit, which lost 20% of its weight in two days and was dead in four days. Few, if any, medicaments can pass from the pulp and dentine through into the cementum.

The results of some hundreds of experiments seem to indicate that unless the tooth in the mouth is subjected to medication by agents capable of destroying the surrounding tissues, one is justified in the dictum, "Once putrescent, always putrescent."



DENTAL LAWS

Summary of Dental License Requirements Throughout The World

By Alphonso Irwin, D.D.S., Camden, N. J.

NEW JERSEY

New Jersey Laws dated 1873, 1884, 1890, 1894, 1898, 1901, 1904, 1908, 1911, 1915 amended 1917, 1918, 1920, 1921, 1924.

Names and addresses of the officers and members of the Board of Dental Examiners: Fred N. Lum, Jr., president, Chatham, N. J.; J. C. Forsyth, secretary-treasurer, 429 East State St., Trenton, N. J.; C. F. A. Hane, Jersey City; Albert Kerr, 500 Third Street, Union Hill; Wm. I. Thompson, Asbury Park; Eugene S. Griggs, New Brunswick; A. L. Westcott, Atlantic City; Walter F. Barry, Newark, N. J.

The English language (dental supervision), registration and examination are required of all applicants for a license to practise dentistry in New Jersey. The last week in June and first week in December examinations are held, at the State House in Trenton; examination fee \$25.00; re-examination \$10.00, payable ten days before the commencement of the examinations.

Requirements: Four years approved High School diploma or equivalent and certificate of the State Supervisor of Public Instruction, showing that before entering the Dental College such four years' approved High School course *was* completed; also dental degree from a recognized dental college. Written examinations upon the subjects taught in a standard dental college, radiography included.

Practical tests: Approximal gold filling with the approximating tooth in position, compound approximal filling of amalgam, a silicate filling. *Prosthetic:* Taking impression and bite, selection of teeth, anatomical articulation of a full upper or lower set of artificial teeth (plain teeth), imbedded in wax must be submitted. Oral Hygiene test, mouth diagnosis and chart of the same are required. Candidate must furnish his own patient, all instruments and materials for this work except the lathe, engine and plaster.

Reciprocity with Vermont, and West Virginia.

Annual registration with the Secretary of the Board by November first, fee \$2.00.

JOHN C. FORSYTH, *Secretary*,
429 East State St., Trenton, N. J.

ANNOUNCEMENT

STATE BOARD OF REGISTRATION AND EXAMINATION IN DENTISTRY OF NEW JERSEY

The State Board of Registration and Examination in Dentistry of New Jersey will hold its regular examination at Trenton, N. J., the last week in June and the first week in December. License fee, \$25; re-examination fee, \$10.

Practical tests required: Insertion of an approximal gold filling with the approximating tooth in position, compound approximal amalgam filling and a silicate filling; candidate must furnish his own patient. Taking of impressions, bite, selection of teeth, articulation, trial plate; candidate must furnish his own patient. Practical examination in mouth diagnosis.

Attention is directed to the following quotation from the dental law of New Jersey: "Applicant shall present to said Board a certificate from the Commissioner of Education of this State, showing that before entering a dental college, he or she had obtained an academic education consisting of a four-year course of study in an approved high school or the equivalent thereof."

In accordance with this law the secretary will issue application blanks only upon presentation of the required certificate from the Commissioner of Education, State House, Trenton, N. J.

The Board announces a new rule which goes into effect in December, 1924. Hereafter candidates are to be given the privilege of appearing at four examinations (one examination and three re-examinations) extending over a period of three years. If the candidate is not then eligible for a license after these four examinations, he is then required to take all of the subjects over again and upon a further failure to secure a license after four more examinations extending over a period of three more years, that candidate shall be declared ineligible for any further examinations.

Application must be filed, complete, ten days before the date of the examinations.

Address all communications for further particulars to

JOHN C. FORSYTH, *Secretary*,
429 E. State St., Trenton, N. J.

Verified Sept. 26th, 1924.

REQUIREMENTS FOR APPLICANTS

All persons desiring to commence the practice of dentistry in New Jersey must secure a license from this Board before engaging in said practice.

Applicants for examination shall present to the Secretary of this Board at least ten days prior to the commencement of the examination, at which he is to be examined, a written application on a form provided by said Board, together with a certified check or money order for twenty-five dollars (\$25.00), drawn to the order of *The State Board of Registration and Examination in Dentistry of New Jersey*. For each subsequent examination a fee of ten dollars (\$10.00) is required.

Quotation from the Dental Law of New Jersey.—Applicant shall present to said Board a certificate from the Commissioner of Education of this State, showing that *before entering a dental college*, he or she had obtained an academic education consisting of a four-year course of study in an approved public or private high school or the equivalent thereof.

No application blank will be issued until the Secretary has received the required dental student certificate.

Professional Education.—Candidates must have been graduated in course with a dental degree from a dental school, college or department of a university recognized by this Board.

The following information will be required on the application form:

Evidence that the applicant is 21 years of age.

A statement relative to the months in different years spent in a dental college.

A Certificate of Dental Education with signature of proper official and seal of the college affixed.

Certificates of moral character from two dentists in good standing, one of whom must be a resident of New Jersey.

As a means of identifying applicants to practice dentistry, two unmounted, finished, cabinet size photographs (not proofs) of each applicant must be furnished. One shall be certified to by the Dean of the Dental College which he attended (a form supplied with the application blank) and both forwarded with application. One will be marked with the number assigned to the applicant and will be returned to him with his schedule.

Each applicant must bring the returned photograph to the Board of Examiners on the morning on which he takes his first examination.

Photograph to be displayed during the examinations upon table where writing or working.

EXAMINATIONS

Theoretical.—All examinations shall be plainly written in the English language, and shall be on the following subjects:

- (Sec. 1).—Anatomy, Histology.
- (Sec. 2).—Materia Medica and Therapeutics, Chemistry and Metallurgy.
- (Sec. 3).—Oral Surgery, Orthodontia, Radiography.
- (Sec. 4).—Pathology, Bacteriology.
- (Sec. 5).—Physiology, Anesthesia.
- (Sec. 6).—Oral Hygiene, Dental Jurisprudence.
- (Sec. 7).—Theoretical Operative Dentistry.
- (Sec. 8).—Crown and Bridge Work.

Practical Operative Dentistry.—Each candidate must bring his patient, who must not be under sixteen years of age, also all instruments. A Chair and Engine will be provided. The following practical tests will be required: Insertion of an approximal gold filling, compound approximal amalgam filling, and a silicate filling. The cavities must be reasonably difficult and prepared at the examination. Cavity for gold must be approximal, with approximating tooth in position. Candidate may use any kind of gold excepting Crystal Sponge or Mat gold.

Practical Prosthetic Dentistry.—The applicant must furnish his patient for a full upper denture, all instruments and material except the lathe, trial base plate and teeth. The following practical tests will be required: Taking of impression, bite, selection of teeth, articulation and trial plate. An oral theoretical examination will be given at the chair.

Practical Mouth Diagnosis.—Each candidate will be required to diagnose and chart a mouth; patient to be furnished by the Board.

No excuse will be accepted for failure to comply with these requirements.

For other details address

JOHN C. FORSYTH, *Secretary-Treasurer*,
429 East State St., Trenton, N. J.

Verified September 26th, 1924.

RULES FOR APPLICANTS

A schedule giving the day and hour of each theoretical and practical examination, also the candidate's number, will be sent to each applicant upon the receipt of his completed application and should be brought to the examinations.

Each candidate must call at the Secretary's desk and receive his examination card prior to commencing his first examination. This card must be signed by the examiner upon the completion of each practical and theoretical examination and at the conclusion of the examinations the card must be turned in with the last paper. The applicant should see that his name and address as given on the card are correct.

Candidates must be provided with a fountain or stylographic pen, as all theoretical examinations must be in writing.

Questions must be answered in the order given, and papers handed to the Examiner of the section at the end of each session.

All unanswered questions will be marked against the applicant.

The questions shall be turned in with the examination papers.

Candidates are required to take the entire examination or no credit will be given, as a partial examination will not be accepted.

Any candidate detected in an attempt to give or obtain aid, in copying the questions, or in using any unfair means, shall be instantly dismissed from the room, and his papers for the entire examination shall be canceled.

Explanation of questions and criticism or inspection of the answer papers by the examiner during the examination will not be permitted.

If any candidate withdraw himself, without permission, from the sight of the examiner his examination shall be closed. This rule permits a candidate temporarily ill to withdraw from the room in company of the proctor.

No reference shall be made on the papers to any college or professor thereof.

Handwriting of candidates must be legible.

All communications should be addressed to the Secretary, and not to individual members of the Examining Board.

JOHN C. FORSYTH, D.D.S.,
429 East State St., Trenton, N. J.

Verified September 26th, 1924.

NEW JERSEY LAW APPROVED SEPTEMBER 1, 1915

Amendments up to 1924 are referred to in the Announcement and in the Abstracts from the Dental Law.

Abstract: The Board shall, at its annual meeting, elect from its members a president, and an officer to be known as secretary-treasurer, which officer may or may not be a member of the Board; it shall hold at least two meetings annually for examining and licensing persons to practise dentistry in this State, at which meetings five members

shall constitute a quorum; said Board shall have the power to determine the good standing and repute of any dental school, college or department of a university, and may from time to time designate, in some public manner, schools, colleges or departments of universities, whose diplomas will be received by it; it shall annually make a report of its proceedings to the Governor and to the New Jersey State Dental Society. The seal heretofore adopted by it shall continue to be the common seal of the Board.

3. The Board shall from time to time adopt rules for its own government and for the examination of candidates for licenses to practise dentistry; any rule altering the nature or increasing the severity of the examination or the subjects to be included therein shall not be enforced within six months after its adoption and public promulgation; the examination of applicants shall be confined to written or oral, or both written or oral; examinations upon subjects properly relating to the science of dentistry, the knowledge of which is necessary to the proper and skillful practise of said science; the Board may also require from applicants, as part of the examination, demonstration of their skill in operative and prosthetic dentistry; no person shall be examined by said Board unless he or she be twenty-one years of age, of good moral character and shall present to said Board a certificate from the Superintendent of Public Instruction of this State, showing that before entering a dental college he or she had obtained an academic education consisting of a four years' course of study in an approved public or private high school or the equivalent thereof; and unless he had been graduated in course with a dental degree from a dental school, college or department of a university approved by said Board, or shall hold a diploma or license conferring full right to practise dentistry in some foreign country and granted by some authority recognized by the Board, any member of the Board may inquire of any applicant for examination concerning his qualifications, and may take testimony of any one in regard thereto, under oath, which he is hereby empowered to administer.

4. Every applicant for license to practise dentistry shall file his application with and pay to the secretary-treasurer of said Board a fee of twenty-five dollars and present himself for examination at the first regular meeting of the Board after such application, due notice of which shall be given; such fee shall not be refunded, unless from sickness or other good cause appearing to the satisfaction of the Board such applicant was prevented from attending and completing such examination; further or subsequent examinations under such application may be given to applicants, in the discretion of the Board, upon payment of an additional fee of ten dollars.

LICENSE AND INTERCHANGE

6. Said Board shall register as licensed dentists, and under its seal and the hand of its president and secretary-treasurer issue to all persons who shall successfully pass said examination its license to practise dentistry in this State; said Board may, in its discretion, without the examination hereinabove provided for, issue its license to practise dentistry to any applicant therefor who desires to remove to this State from another State or Territory of the United States or from a foreign country, in which he or she was licensed to practise dentistry, and had conducted the practice of dentistry for at least five years immediately preceding application to said Board for such license; *provided*, such applicant shall present proof, by affidavit or otherwise, of the facts above mentioned, and shall present a certificate from the Board of Dental Examiners or from the Board or official exercising similar powers of the State, Territory or country from which he or she desires to remove, certifying that he or she is a competent dentist or dental surgeon, and of good moral character; *provided, further*, that such certificate shall be presented to the said Board of this State not more than six months after its date of issue, and that the Board or official issuing such certificate shall, in like manner, recognize certificates issued by the Board of this State and presented to them by licensed practitioners of dentistry of this State; *and provided, further*, that the Board of this State may, in its discretion, refuse to issue licenses under this section without examination to any person not qualified under this act for admission to examination for license to practise dentistry. The fee for issuing any such license without examination shall be fifty dollars, which shall be paid before the issuance of such license. The State Board of Registration and Examination in Dentistry may issue to any person known to it to be competent and of good moral character, who is licensed to practise dentistry in this State, and who desires to change his or her residence to another State, Territory or foreign country, a certificate over the signature of the president and secretary-treasurer of said Board, authenticated with its seal, which shall attest the facts above mentioned, and which shall give the date upon which such person was licensed to practise dentistry; the fee for issuing such certificate shall be five dollars, which shall be paid before the issuance of such certificate.

*(8. Every licensed dentist shall procure from the secretary-treasurer of said Board on or before the first day of November, one thousand nine hundred and fifteen, and on or before the first day of November annually thereafter, an annual certificate of registration; such certificate shall be issued by the secretary-treasurer upon payment

* As amended by Chap. 161, P.L. 1924.

of a fee of two dollars; all certificates so issued shall be prima facie evidence of the right of the holder to practise dentistry in this State. It shall be the duty of the secretary-treasurer of the Board to mail to each licensed dentist in this State, on or before the first day of October, one thousand nine hundred and fifteen, and on or before the first day of October annually thereafter, a printed blank form to be filled out by such licensed person, which form shall be returned by such licensed person to the secretary-treasurer of said Board, properly filled out, together with the fee herein fixed for such annual registration. Upon the receipt of such form and fee, the annual certificate of registration shall be issued and transmitted. The Board shall cause a notice to be inserted in not less than three newspapers; one in the city of Trenton, one in the city of Camden, and one in the city of Newark, to the effect that such annual registration will be required. Such notice shall be printed in such papers, once a week for three consecutive weeks between the first day of September and the first day of October, one thousand nine hundred and fifteen, and during the same period annually thereafter. Every licensed dentist who shall continue or engage in the practice of dentistry after having failed to procure any annual certificate of registration at the time and in the manner required by this section shall be subject to a penalty of three hundred dollars for a first offense and six hundred dollars for a second and each subsequent offense.)

*(9. That hereafter it shall be the duty of every person practising dentistry within this State, upon demand in writing made by the secretary-treasurer of said Board, to furnish, within thirty days after said demand, to said secretary-treasurer of said Board, the name and address of each and every person practising dentistry, or assisting in the practise thereof, in the office of said person. For failure so to do, the said person shall be liable to a penalty of twenty-five dollars, besides costs. Every person practising dentistry in this State shall at all times display his or her registration certificate for the current year in a conspicuous place in his main operating room where the same shall be in plain view of patients and every person who shall practise dentistry within the meaning of this act without having said certificate on display as herein required shall be liable to a penalty of fifty dollars besides costs. Every member and employee of the said Board, when identified as herein provided, shall be authorized during ordinary business hours to enter and inspect any dental office or dental laboratory for the purpose of enforcing the provisions of this act. Each member and employee of said Board shall, when inspecting any dental office or laboratory, carry on his person, and exhibit when

* As amended by Chap. 161, P.L. 1924.

properly requested, a card stating his name and connection with the Board, verified by the signatures of the president and secretary of said Board and by the seal of said Board.)

10. No corporation shall practise or continue to practise, offer or undertake to practise or hold itself out or continue to hold itself out as practising dentistry. No person shall practise or continue to practise dentistry as an officer, agent or employee of any corporation or under the name of any corporation. No person shall practise or continue to practise dentistry or offer or undertake to practise or hold himself out or continue to hold himself out as practising dentistry under any firm name or trade name or under any name other than his true name; *provided*, that nothing herein contained shall prohibit the practise of dentistry by a partnership under a firm name containing nothing but the surname of every member of said partnership; *and provided, further*, that nothing herein contained shall prohibit a licensed dentist from practising dentistry as the employee of a licensed dentist practising under his own name or under a firm name containing only the surnames of each member of such firm. Every person or corporation violating any of the foregoing provisions of this section shall be subject to a penalty of three hundred dollars for the first offense and six hundred dollars for the second and each subsequent offense. Every person practising dentistry under a firm name as herein authorized and every person practising dentistry as an employee of another shall cause his name to be conspicuously displayed and kept in a conspicuous place at the entrance of the place where such practice shall be conducted, and any person who shall neglect to cause his name to be displayed as herein required shall be liable to a penalty of one hundred dollars.

*(11. No person shall practise dentistry within the meaning of this act, unless licensed so to do. No person shall employ for a stated salary or otherwise, or give aid, or assist any person not regularly licensed to practise dentistry to perform any dental operation upon human beings in this State. Any person who shall violate any of the provisions of this section shall be subject to a penalty of three hundred dollars for the first offense and of six hundred dollars for the second and each subsequent offense.)

* As amended by Chap. 161, P.L. 1924.



DENTAL ECONOMICS

January 5, 1925.

Editor Dental Digest:

What is wrong with me? I will greatly appreciate your kind attention and comment on this letter.

I am a dentist—six years in March. I cannot keep up with people who are not dentists; that is, I cannot afford many things they have and enjoy. I should like to know if anything is wrong with me or whether it is the same with the average dentist the country over.

My gross receipts for the year 1923 were \$7100 and net income, not deducting depreciation of equipment, was \$4700. My gross receipts for the year 1924 were \$6500 and net profit, not deducting depreciation, was \$4900.

Now, I shall greatly appreciate your answers to the following:

1. What is considered a fair net income for an average dentist?
2. What is the average net income of a dentist?
3. What is the difference between net earnings of a dentist and a physician?
4. I have had patients or people tell me that this or that dentist is terribly busy—always crowded. I, on the other hand, work only four days a week because I can place my patients in these four days and still be idle half of the time. Does it mean that these dentists earn \$14,000 or \$15,000 a year?
5. Why is it that dentists whom I know personally, who have crowded waiting rooms, take in no more or even less than I do—from their own admission—while my waiting room is never crowded and has patients only four evenings in the week?

Again I wish to say that I shall greatly appreciate your personal answer to the above, for which I beg to thank you in advance.

A. B. C.

Dear Doctor C.:

Replying to your letter of January 5th regarding your income, we would say that your income is above the average for dentists the

country over, but perhaps it is about average for large cities like Chicago.

We should say that while your gross receipts for the year 1924 were somewhat less than those for 1923, your net income showed a marked improvement in amount and it would indicate that you were managing your expenses in a much better way in 1924 than the year previous.

While we have no definite figures, it is believed that the average income for dentists in the United States is about \$2500 net, and while this is extremely small for a professional man's income, it is nevertheless based on fair estimates, and in some rural communities such an income spells comparative comfort, but in a small way. The last information we had on the difference between the net earnings of a dentist and a physician would indicate that the dentist has the better of the physician.

There is a great deal of loose talk among dentists, as well as among patients, about the incomes of various men in the profession, and there is also a vast difference in the management of dental practices. The writer has known men who have been busy at the chair day after day and yet accomplished so little in finished work that their actual income for their working hours was extremely small. On the other hand, certain men handle fewer patients but really accomplish something in the way of finished work for each patient that they handle, and the result is that they make every working moment count as an income-producing effort. You have probably heard of men who belong to the "cotton" market of the dental trade, that is, men who like to be busy, and like to have the *appearance* of being extremely busy, and who will simply change dressings and treatments in patients' teeth, putting them off from time to time until they find that they are almost too busy to accomplish anything in the way of real restoration work. Such men waste their own time as well as the time of their patients and wonder why they never get anywhere; yet the patients report that they are "terribly busy" and they get quite a reputation for having a big practice, but when the end of the year comes and they take account of stock, about all they have made is a bare living and they have used up a good deal of energy in doing that.

It is not at all surprising that you find you cannot afford many things that people outside the profession seem to have and enjoy. In the first place, dentistry is not the place for a man who wants to make big money. While there are some men who have been especially successful in a financial way in dentistry, they are the exceptions and they are, first of all, business men and salesmen of their services and usually have been endowed with a personality that has put them above and beyond their fellows as money-makers. If you are satisfied that

you are practicing in a neighborhood where there are enough people of good means to justify an expectation of increased fees and better practice in future years, there is no good reason why you should change. If, on the other hand, you feel that you have the personality that could meet people of higher social and financial standing than those in the community where you are now practicing, it might be advisable to change your location and follow the old lady's advice to the young man on marriage. You may remember she said: "My son, do not marry for money, but go where money is." If you are satisfied that you are up-to-date in your technic and that you are capable of rendering the highest type of dental service, the kind that people of ample means desire and can afford, it might be worth your while to consider a move. But, on the other hand, don't be hasty in arriving at any definite conclusion, because there are a lot of men who are taking in probably twice as much as you are, but their rent is higher, their expenses are higher, they are spending more money socially and when everything is summed up they don't have much more to show for their efforts than you have.

We, of course, know of a few practices which are very remunerative, but they are based on years of growth, postgraduate study to keep the dentist up-to-date in the most improved methods and on high technical skill and, what is possibly the biggest influence in such practices, a particularly forceful personality.

There are many men practicing in large cities who are simply working for a landlord. On the other hand, there are men practicing in small country towns who have been able to buy and pay for their homes, who sometimes own farms adjoining the town, who drive good cars and who have money in the bank. In other words, there is no golden rule for success in dentistry or in any other line of endeavor, so far as we know, because so much depends upon the individual and his surroundings.

We should say in closing that if a man is interested in making money he might better get into some commercial line and give up practicing dentistry. If he loves dentistry and is able to get some compensation from the practice of dentistry other than the mere money, he will, with attention to business, no doubt be able to build up a very worth-while practice in the course of years, from which he will secure much satisfaction, and live as a respected member of the community.

Trusting we have touched on some points which may be helpful to you and with best wishes for your future success, we are

Very truly yours,

L. W. D.

PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., 610 California Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

KEEPING TRAYS CLEAN.—You are often asked how to keep impression trays bright and clean. I find that steel wool and a little rubbing will keep all trays bright and shining.

I use a flux of vaseline and borax, and think it the best I ever tried. It doesn't seem to be used much, but I know it is fine. Melt the vaseline and stir in all the powdered borax it will take up. If these suggestions seem good pass them on.

L. E. SHARP.

TO REDUCE VIBRATION—To reduce vibration, and hence discomfort, to your patients while using stones in the correction of occlusal trauma, or preparing a tooth for crown or bridge abutment, have your assistant place a hand firmly on the patient's forehead.

DR. M. GIESECKE.

Editor Practical Hints:

A query by A. P. in THE DENTAL DIGEST for November, reminds me of a patient I had a few years ago who had similar trouble with tartar. On questioning I learned that she was an excessive coffee drinker, consuming four or five cups at each meal. I induced her to cut this down to a reasonable amount and the trouble nearly disappeared, at least so the deposit of tartar was quite ordinary in amount. Later I understood that she returned to using coffee in excessive amounts and that the tartar was soon as bad as ever. I assume that this was due to a disturbance of metabolism, and not to any excess of lime salts ingested. Whether A. P.'s case is exactly similar or not, it may start him on a line of reasoning that will help him with his problem.

R. G. JOSLIN.

Editor Practical Hints:

In December Practical Hints noticed the troubles of F. M. W. with his several bridges. The cause of pain is probably due to the springiness of the bridge during the act of mastication. This trouble can be overcome by a stronger and heavier bridge, which would prevent drawing the two abutments together. Hope this information will be of some help.

DR. J. H. WIPF.

Editor Practical Hints:

I have just discharged a patient whose experience might interest the readers of Practical Hints.

Four months ago this girl of twenty-six came in and complained of pain in her ear. I examined the mouth and saw that a third molar was overdue on the upper right side. It had not appeared as yet, so I advised her to wait a few months, warning her to come in for extraction the moment it came in sight.

Meanwhile she wrote me that for some unexplained reason she couldn't talk above a whisper. I had her come back to the office and such was the case. After that I became ill and she went to various physicians and dentists, some who advised tonsilectomy and others who attributed it to a nervous condition. None would attempt to remove the impacted third molar. Suffice to say that I had a hunch and extracted it, the X-ray revealing an ordinary impaction, and five hours later she could talk aloud as well as ever. It had been four months since she made an audible sound.

The case was hereditary, as her father's mother didn't have her upper third molars until she was forty-one years of age, and though the voice wasn't affected her hearing failed about the same time, remaining that way until her death.

Trust this will be of interest to someone.

DR. E. B. HOWARD.

Editor Practical Hints:

Will you kindly tell me the very best way to make a Richmond crown that would pass a State Board? Should it be *banded*? A year ago I took the Jones quiz course in Los Angeles, and they explained what they call on the Coast a "Standard" crown. An answer in the near future will oblige.

J. E. WOOLM.

ANSWER.—In reply will say: I suppose State Boards differ as individuals do in their opinions and standards and what might pass one Board might not pass another. However, I should think that an

acceptable procedure in making a Richmond crown would be to simply follow the technique described in any standard text book.

A modern method of Richmond crown construction which is very satisfactory is as follows: It is a modification of the indirect method of inlay technique. The canal is reamed to receive the dowel pin; a seamless band is selected which is just a trifle larger than the periphery of the root and festooned to conform to gum line. This copper band is now laid aside. We will proceed to take the impression of the reamed root canal. Select a wooden toothpick or small wire pin; softened compound is added to this toothpick or wire and forced to the bottom of the canal, removing carefully and replacing immediately to facilitate ready removal of the modeling compound impression of the canal. All excess compound is now trimmed off the toothpick or wire which projects beyond the face of the root. With the modeling compound impression of root canal in place we next proceed to make a modeling compound impression of the face of the root. A notch is cut in the occlusal end of the copper band after the modeling compound is chilled while on the root face. The object of notching is to facilitate a correct placing of the copper band into a plaster of paris impression, which should include the corresponding tooth in the opposite side of the arch. This plaster of paris impression is removed from the mouth in section, being careful not to disturb the modeling compound impression and copper band. The impression in the copper band is now removed directly in line with the long axis of the tooth and packed with amalgam as in indirect inlay work. After the amalgam has set the copper band is returned to proper position in the assembled plaster impression. The model is now poured, giving us a reproduction of the teeth adjoining, with our metal root and root canal reproduced. A wax bite should be taken and this plaster cast carrying the metal root facing is mounted on an anatomical articulator. A facing is selected and ground to place and entire balance of the crown, including pin, band and all parts is formed in wax and cast in one piece of a hard gold. The crown is now fitted and polished upon the amalgam model, the facing is cemented to place and it is ready for the mouth.

A. C. WITHERS.

Editor Practical Hints:

I was very much interested in the letter from F. W. in November number in reference to the trouble he has had in recent years with cements, owing to their slow setting. I have also had the same trouble and have written to one manufacturer about it but without any good results.

"Time is money" both to the patient and dentist, and it is certainly very annoying both to the patient and dentist to have to wait from

fifteen to forty-five minutes for the cement to set, subjecting the patient and dentist to unnecessary fatigue. Considering the years that some of us have mixed cements I hardly think our technique can be at fault.

With their widely advertised, modern-equipped laboratories the manufacturers certainly should be able to produce a cement that sets more rapidly. I always use the rapid-setting liquid, as I consider the slower-setting ones worthless.

While writing this letter allow me to say that I do not agree with you in the advice you gave a dentist who wrote to you some time ago concerning the advisability of removing a pulp. You told him not to do it, as he made himself liable to a suit for malpractice. I think if I were to fill a tooth, knowing the pulp to be exposed, no matter how skilfully I did it, I would be fully as liable to be sued and in fact more so than if I removed the pulp and filled the roots. Capping a pulp and letting the patients depart perhaps for Europe or the mountains, I consider is about equivalent to taking a chance of sending them to hell for a while. Especially is this the case if they go to the mountains and are subject to change of altitude. The older dentists tried that treatment thoroughly and with poor success, and I see nothing new in present methods.

ROBT. H. FONES.

ANSWER.—Your letter was forwarded to me from the New York office, and I wish to thank you sincerely for same. I like a man who thinks and has positive opinions and expresses them freely and frankly. I think we should jump on the manufacturers of all dental supplies good and hard just as often as they need it, and perhaps they do need it on this cement proposition, for while I personally have not realized any increasing deficiency in the quality and efficiency of cement where my mixing technique has been carried out as per correct requirements, still I hear a good many complaints similar to yours and F. W.'s. It does seem that modern science should be able to produce something to suit all of us all of the time.

I am particularly interested, Doctor, in the last part of your letter. If you will refer back to my answer to J. A. S. you will see that I did not say that a man removing a pulp renders himself liable to a suit for malpractice, but I did say, "*In my opinion* the removal of pulps from healthy vital teeth *should be* considered an act of criminal malpractice." Unfortunately I am not the author of the law in this matter and therefore my opinion is only an opinion. I will take this occasion to inform you, however, that this opinion is not based on the claims of any new fangled, recent or merely present method of procedure. The method that I follow and upon the results of which the

above opinion has been formed has been used consistently and without interruption in the offices of some of the most conscientious, thorough, painstaking and successful of the older practitioners, as well as an increasing number of devoted and enthusiastic followers of these older men in more recent years—for a period of more than twenty-five years.

Thousands of teeth with exposed pulps have been saved to function normally as vital, healthy teeth throughout the lives of the patients or until the inroads of pyorrhea, decay, trauma or some other disassociated factor has resulted in their loss. Just because the "older dentists" whom you happen to know about have tried and discarded a capping procedure that resulted in disaster in their hands is not conclusive proof that the "older dentists" I happen to know about with the procedure to which I refer have not for all these years been serving their patients faithfully, honorably and well with as high a percentage of success in their pulp capping operations as in the average other dental operation performed by them, by you or by anyone else with reasonable skill doing his work to the best of his ability.—V. C. SMEDLEY.

Editor Practical Hints:

Patient, male, married, age 23. Father and brothers have sound teeth, healthy gums, but mother in five or six years lost upper and most of lower teeth from pyorrhea. Patient's gums look firm and pink, but on slight pressure bleed freely in interstitial spaces. Any hard food produces bleeding until the food is so mixed with blood that swallowing is out of the question. All teeth in place except third molars. Occlusion almost perfect. Except fissure fillings in first molars teeth are sound.

Smokes average of ten cigarettes, four cigars, and three pipes per day. Three or four drinks of booze or beer a week. No habit of grinding teeth day or night that he is conscious of, but rather nervous and restless. Seems healthy, gains weight, and is not undernourished.

Am using finger massage with astringent paste, and ordered him to use same at home twice daily; also a 15 per cent trichloroacetic acid twice weekly. Any advice from you to help him out will be greatly appreciated.

E. O. S.

ANSWER.—Your case is very interesting, especially in light of the fine family history and the gums being healthy and pink. However, as the gums bleed freely in the interstitial spaces the vessel walls must be affected and the cause should be found. If there are no deposits, no traumatic occlusion, I would consider the possibility of a systemic cause, such as diabetes. A complete radiographic examination would

be helpful in determining the presence of infection and so ascertain if the crest of the alveolus is breaking down. I would be glad to aid you in determining such radiograms as you wish.—G. R. WARNER.

Editor Practical Hints:

IN DENTAL DIGEST, October, 1924, on page 734, occurs a statement of the use of elastic band in the treatment for pyorrhea alveolaris.

Would you kindly give in detail the use of same, and as to size required and any other information you have, as I never heard of this appliance before and am interested. C. P. B.

ANSWER.—The use of the elastic band for creating stasis in the circulation for a condition of hyperaemia has been in use in general medicine for quite a long while. It is quite commonly used in the treatment of surgical tuberculosis by heliotherapy. While it might possibly be beneficial in the treatment of pyorrhea the writer has never seen a case that did not respond without using this method, and putting the patient to the discomfort of the elastic band seems unnecessary. However, this method may have merits, but if it is used it should be under very close supervision and the results carefully tabulated.

—G. R. WARNER.

Editor Practical Hints:

For three years I have been annoyed with a lady who came from Copenhagen, Denmark, six years ago, insisting that the excavating of cavities in teeth could be made absolutely painless by the use of an electric needle placed in the cavity for a few minutes (about 20 minutes, she says) after the cavity is cleaned out to a depth sufficient to feel the sense of pain.

The needle (electric) is then removed and no more pain is felt.

While using this electric needle in the cavity, she states that the dentist in Copenhagen had her remove all rings from her right hand, and this hand was placed in a basin of water. Now she states that some mole or wart removers in Honolulu do their stunt likewise and painless, but she says she does not know whether they are M.D.'s or what they are.

Perhaps the drilling or excavating on the tooth was done while the electric needle was in the cavity and her hand in the water—I do not remember—but anyway what I wish to know is whether such a thing is possible—to make cavity preparation in a vital tooth painless by any such method, and if so, what is it and why not used generally?

Or did the electric needle devitalize the tooth, and if so is it painless?

I insist that no such methods are used, and she states that it is used by a dentist in Copenhagen.

Will you please tell me all you can about the matter through your Practical Hints.
A. J. D.

ANSWER.—Your letter describes a process which is known as cataphoresis. This method of desensitizing dentine was in very common use about twenty years ago. The tooth is carefully isolated by a rubber dam from the rest of the mouth and the cavity is filled with a strong solution of cocaine hydrochlorate. When the positive pole of a battery is introduced in this solution through the medium of a small needle, the patient's hand usually grasping a moistened electrode, which is the negative pole of a battery, the current is passed through a rheostat and measuring device. It takes quite a long time to desensitize in this manner, and the desensitization is frequently incomplete, therefore the method fell into disuse rather soon after it was taken up. I know of no one who is using it now. Conduction anesthesia is so much simpler, quicker and more effective that there really is little if any occasion to use cataphoresis.—G. R. WARNER.

Editor Practical Hints:

In your October DIGEST I saw a query in regard to ptyalism, and the possibility of its being caused by a bridge and amalgam fillings—your answer being in the negative.

Had a case a year ago in which the patient had such a profuse flow of saliva that he filled on the average of thirty handkerchiefs a day. The mouth was in very bad condition, poorly constructed bridges, leaky fillings, septic teeth. Upon the removal of the bridges, the extraction of hopeless teeth and a general institution of asepsis the flow of saliva became normal and has remained so till the present time—a matter of ten months or so. The conclusion is that the toxins from oral sepsis may irritate the glands and produce ptyalism. H. G. S.

ANSWER.—Replying to yours at hand, would say that in my answer to the query signed A. K. I said that, "I do not believe that the amalgam fillings in the same mouth with the bridge would be a cause of ptyalism," and I still feel that amalgam fillings in the same mouth with the bridge would not, per se, be a cause of ptyalism. The condition in the mouth of your patient presents quite a different picture. The "poorly constructed bridges, leaky fillings and septic teeth" might easily and very naturally cause ptyalism, although focal infection is not mentioned as one of the causes in the literature. I am glad to get a report of your case as it might be a help in other cases.—G. R. WARNER.

Editor Practical Hints:

As a reader of Practical Hints in the DENTAL DIGEST I am looking for information. Patient complains that her upper and lower dentures crack together when she eats and make a noise much to her annoyance. She is about 60 years old and has worn them about ten months. The dentures fit well and the occlusion is good—in fact there is nothing wrong that I can see. Your advice will be appreciated.

E. R.

ANSWER.—The clattering or cracking of full dentures is usually due to one of two things. The bite being open too wide, or the lower denture being thrown loose by muscular action. This latter is usually due to the flanges going down too far.—G. R. WARNER.

Editor Practical Hints:

I wish you would describe the process of taking an impression for an inlay for an M.O.D. direct method (or M.J.D.) cavity in an upper incisor tooth.

C. R. T.

ANSWER.—If, in preparing the cavity, it is necessary to carry the gingival margin high above the contact point it is advisable to use some form of band matrix to guide the wax against the gingival margin and hold it in place while it is cooling. The cone of wax should be sharpened down to wedge shape so that the point will pass between the axial wall of the cavity and the matrix. This point should then be warmed well in the flame and carried with steady pressure up to the gingival margin, being held there until cool. The cone now being cut off and in a similar manner an impression taken with another cone of wax of the opposite portion of the cavity. This should then be cut off even with the occlusal surface and the two portions of wax joined with a hot spatula. The matrix and impression now being removed and after removing the matrix from the impression, the impression may be returned to the cavity for final trimming. If the occlusal portion of the cavity is not very deep, so that the part of the wax uniting mesial and distal portions is not very strong, the pattern should finally be removed with a staple of wire rather than with a single wire, when the pattern will be ready for investment.

—G. R. WARNER.



CORRESPONDENCE

Editor DENTAL DIGEST:

"Some Dentists' Advertisements," by C. E. Thomas, in the September DIGEST, haven't a thing on some dentists' (?) advertisements I have culled from present-day literature.

Advertising is an art, and of course we have some comic artists, but let us hope that the teeth are filled better than the advertising space. Can you read between the lines and discover any personal emotions in the advertisement of this dentist when he said:

"Most people do not take kindly to having Dick, Tom and Harry hammering on their teeth unless they know for a fact that they are able, competent tooth-carpenters in which to place confidence.

GIVE DR. BLANK A TRIAL

If you have one tooth that gives you as much trouble as your wife's whole mouth, give Dr. Blank a trial."

I have often wondered if that young Texas dentist was gambling his last dollar on his next Sunday's dinner when he advertised:

"Hurry! See about having those teeth fixed up while you can pay for same by bringing me some frying chickens."

This Virginia dentist would kill two birds with one stone, and perhaps his ad will be appreciated:

"THE BEST DENTIST AND THE OLDEST PRACTICING DENTIST

DR. B. B. BLANK

I think as a general thing, if the patient will permit, I do better by them and better work than any dentist in town is likely to do. For City Recorder each year. But if elected will tell of any shady transaction of the taxpayers money.

THE BEST DENTIST.

LOWER PRICED.

DR. BLANK."

It looks as if Ohio may be overstocked with dentists, because here is one who says:

"I have two sets of offices. The General Offices are at 00 Main Street, second floor, where you see the Chew Mail Pouch sign across

the street, and my residence office at 00 ——— Street (pathway to back door).

Office hours: 9 to 12 and 1 to 4, if I am there. I may be in evenings. Likely retire at 9 P. M.

DR. BLANK. Dentist since 1903."

A bit of light opera from Indiana!

"I always try to be honest with my patient because twenty years from now I want to be able to look my patients in the mouth. I make Crowns without thorns, Bridges without sighs and plates for all purposes except ruminating the lint:

I will now touch the soft pedal and give you a line of the old familiar song:

PRICES RIGHT: PAINLESS EXTRACTION: ALL WORK GUARANTEED.

DR. B. B. BLANK, BLANKITY, IND."

A number of athletic contests were held at a popular amusement park in West Virginia one holiday. Much amusement was caused by the following advertisement which was posted conspicuously by a local dentist:

"INDUCEMENT (SPECIAL) TO ENTER THE CONTESTS

For any one winning in any one of the contests, I will attempt to extract, on the spot, free of charge, without medicine, one tooth, using one and the same forcep for any tooth. I have only one forcep with me.

DR. B. B. BLANK, on the grounds all day."

One of the best dental advertisements I have ever seen was printed on a card and freely distributed in a certain city just a few years ago.

"WHO AM I? Why! Don't you know me?

DR. B. B. BLANK.

The Best Dentist.

The Independent Dentist.

I do not want a patient now but will want a reasonable honest one when I feel an inclination to work and have no work to do. I can explain why I prefer work at times. It is only amusement at times. I won't dissipate or get in trouble to be amused.

Yours Very Respectfully,

DR. B. B. BLANK."

If these "ads" seem interesting, print them.

D. M. STEELE, D.D.S.,

Cayuga, N. Y.

DENTAL LABORATORIES

Should the Dental Technician Be Licensed ?

By W. A. Sanford, Oakland, California

The importance of cooperation between dentists and dental laboratories cannot be disputed by anyone. A number of interesting articles have appeared in the dental journals stressing the necessity for careful preparatory and impression technic by the dentist before submitting cases for construction by the laboratory technician. If the dentist's technic has been carefully done, the next thing is to put the case into the hands of an experienced and reliable dental technician.

Some dentists are fortunate enough to know where reliable dental laboratory service may be obtained. On the other hand, a large percentage of dental practitioners have never found the ideal dental laboratory where careful and accurate impression technic is appreciated and carried to completion in a satisfactory manner. How is the dentist to know who is who? You may say, "By inquiring of some other dentist or some supply house," both of whom may put you on the right track or bring you additional grief. The writer has knowledge of some cases where certain laboratories have been highly recommended because of the large volume of business transacted with the supply house, the quality of work done being of secondary consideration.

Before beginning our search for the ideal dental technician, a resumé of some of the various types of laboratory proprietors may be in order. One of the most common parasites is the man who makes his appeal on a price basis only. Any intelligent, thinking person can readily see that such tactics are a confession of ignorance or are due to a deficiency in the qualifications necessary to command a legitimate fee. Then we have the "get-the-money" type that is always trying to "slip something over." He will promise anything, but will do no more than he is compelled to in order to get the money. Another vicious type is the man who will make all kinds of inducements in order to get your business, reconstructing innumerable cases whether responsible or not, just to show on his books a large volume of business. Then he "hooks" some innocent man who is looking for a chance to buy a good-going laboratory business. The new owner takes possession of what appears to be a well-established business. He soon finds,

to his astonishment, that not only is he compelled to work at a very close figure but he is called upon to do innumerable unreasonable extras which in a few weeks put him out of business. The former owner not only is guilty of robbing the purchaser of his laboratory, but is pursuing tactics which will ruin the business for others also.

Then we have the inexperienced upstart who has worked a few months as assistant to some dentist or laboratory man. While we all have a kindly feeling for the beginner, this type is becoming a serious menace to the public health of the community by gaining his experience at the expense of the public instead of through the proper channels, before he qualifies as a full-fledged dental technician.

Another serious menace is the man who persists in the substitution of cheap materials. In an open letter to the dental profession by a well-known gold manufacturer, we find the following on this subject:

"Over half of the gold used in dentistry in the United States is consumed by the dental laboratories. And it is through a certain class of dental laboratories that cheap, debased golds find their outlet.

"Frankness in discussing this matter is essential. The dental profession is partly to blame. Dentists can control the situation. They may be unaware of the actual extent of the evil; they may be indifferent or the victims of misplaced confidence. At times it may be because the laboratory man is poorly paid and is tempted, therefore, to use cheap, low-grade materials.

"Whatever the source of evil, the remedy is plain: firm insistence on the use by your laboratory of standard products, known to you as such, made by firms whose reputations have stood the test of time. It is obvious that if dentists want dependable laboratory service, they can have it. But they must patronize only those men whose character is an assurance that they will not, and whose workmanship is such that they need not, substitute debased for standardized golds. An inferior mechanic uses cheap materials and his prices are low. To force down prices below a certain point is to put a premium on poor work as well as upon poor materials.

"There is but one solution. Pay your technician for good work and standard golds; specify the materials you want used, as in all business transactions; and see that you get what you pay for."

In presenting the letter above we are brought face to face with concrete, indisputable facts, but there still remains the problem of finding the reliable dental technician. The reluctance on the part of many well-meaning dentists to recommend a good laboratory is responsible, to a large degree, for the existence of so many irresponsible, unethical dental laboratories.

After reading the article by Dr. Sigel Roush, M.D., D.D.S., of Troy, New York, in the July issue of *THE DENTAL DIGEST*, one is im-

pressed by his seemingly intimate knowledge of the relations existing between dentists and dental laboratories. While the doctor would go a little farther than some may deem necessary, he shows beyond question that the solution of a large part of our troubles is possible through legislation. With his kind permission I am going to repeat that portion of the article pertaining to the licensing of dental technicians.

"And so I agree that some sort of a working basis and understanding between the laboratory and operator is both desirable and necessary for satisfactory teamwork. This may be accomplished through standardizing the work by suitable laws, examinations and certificates, or some other way that would require laboratory workers to meet certain requirements; and at the same time the dentist should, on his part, be expected to furnish proper material for the mechanical worker. To accomplish this desirable condition, the laboratory man must have considerable experience in fitting in plates and taking impressions, and if not actually doing the work, at least should have a chance to observe the work done by others. I do not believe a man can be a really competent laboratory worker until he is familiar from observation or actual work with the operations in the mouth. Take for example the anatomy of the mouth, the various muscles, frena, tissues and fats in and about the oral cavity and their relations and effect on the dentures to be worn. How can a man work intelligently on the construction of plates if he hasn't had opportunity to see how one affects the other when in situ?"

It is a foregone conclusion that Dr. Roush submitted his most worthy suggestions subject to modification. He has shown the importance of knowing why we do certain things. There are different ways by which the necessary knowledge and experience may be acquired without usurping any of the rights of the dental surgeon. It is his help that we need most, in order to be of greater service to him.

Dental colleges could provide suitable courses for the education and training of dental technicians. In addition to dental prosthesis, instruction in anatomy of the oral cavity, dental chemistry, metallurgy, histology, physiology, pathology, orthodontia and any other subjects involved in the intelligent interpretation of our work would be in order. The student should have an opportunity to observe, at least, impression technic and the insertion of all kinds of artificial restorations by competent instructors.

Additional information of the greatest value might be acquired by attending dental society meetings, where some of the best prosthetic clinics are held. The practice of inviting dental technicians to dental society meetings is becoming more general than ever before, and when the dental profession realizes the benefit to be derived by showing the

laboratory man the latest "wrinkles," associate memberships will no doubt be extended to all worthy and ethical dental technicians.

At the last session of the California Legislature an act was passed, by both houses, requiring the examination of all dental technicians by the State Board of Dental Examiners and the issuing of licenses to conduct a dental laboratory (working on inert matter only). This was entitled *An Act To Raise and Regulate The Educational and Efficiency Standards of Dental Technicians*. Penalties were provided for various infractions of the law, such as unethical conduct, substitution of inferior materials and workmanship, intemperance, immorality, general incompetence, etc.

While this act had the moral support of a large number of our best ethical dentists, an organized effort on the part of the so-called schools of mechanical dentistry and some advertising interests, it is believed, was instrumental in causing its veto by the Governor. It has been charged that the dental technician's bill was an attempt to force upon the dental profession a trust, which would arbitrarily raise the price of laboratory service to a prohibitive figure. This charge emanates from the source that has repeatedly accused the dental societies of fixing prices, namely, certain advertisers. Price-fixing among dental laboratories is just as impossible as it is among dental practitioners—if not more so.

At the present time there is nothing to prevent any person, regardless of training or other necessary qualifications, from opening a laboratory and announcing to the world that he is a first-class dental technician. The bargain-hunting adventurer is keen to seek out this type in preference to the old reliable laboratory, and the public again pays the bill. The writer concedes the impossibility of overcoming all our difficulties by legislation, but as the dental profession has reached such a high plane of educational efficiency, it seems imperative that some action should be taken to place the dental technician on a higher plane intellectually and morally, inasmuch as he is a part of the great dental profession.

It is one thing to deal with a clientele which knows little or nothing of the value of the service rendered, but it is quite different with the dental technician. His business is with a highly educated clientele, the dental surgeons, who know just what they want, and how well it should be done. Cooperation with the up-to-date, progressive dental surgeon is impossible unless the dental technician is likewise a man of character and intelligence, possessed of a sufficient amount of experience and skill to interpret and execute his work according to instructions.

It can readily be seen that the reliable, progressive dental technician of today, the man with whom you would care to trust your most par-

ticular prosthetic cases, must possess qualifications far superior to the "mere mechanical man" of yesterday. This would be possible by requiring the proprietors of dental laboratories to pass a written and practical examination given by the State Board of Dental Examiners. Only those who were competent to be licensed should conduct a dental laboratory, subject to penalties for various infractions of the law, which would serve as an incentive toward increased efficiency rather than as a club over their heads.

Very few ideas suggesting radical improvements meet with the unanimous approval of all parties concerned, but if this paper proves food for thought which will result in a substantial improvement, the writer will feel that another step forward has been taken. In closing, I will say that cooperation, investigation, education, legislation, standardization, examination, registration, time, thought and lots of hard work and study will solve the problem.

Physicians Building, 1225 Washington Street



DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

For the past six months I have been working in a dental office. I do the secretarial work, assist with the x-ray and laboratory work and at the chair. I like the work immensely and find it very interesting. I have been reading The Dental Digest and should like to know if there are any magazines or papers published which deal with the duties, etc., of the dental assistant. I also should like to know if there is a dental assistants' association in New Hampshire and if a young lady must be a graduate of a dental assistants' school to become a member of said association.

E. W. A. (N. H.).

During the past four or five years a number of articles have appeared in THE DENTAL DIGEST on the duties of the dental assistant; also in other dental magazines. I do not know of any published books or magazines dealing exclusively with the work of the dental assistant.

For your secretarial duties it is difficult to give specific advice as many offices have their own special methods of procedure. However, if you do the things you are instructed to do at the time they should be done, you will probably have no difficulty in keeping your records in good order. There are many systems of bookkeeping, records and charts (good, bad and indifferent) to meet the needs of a dental office. Be sure you are thoroughly conversant with the one used in your office before you suggest any changes.

For information concerning x-ray technic, if you have no book of instruction available, I suggest you write to the manufacturers of x-ray equipment for literature and instruction books issued by them. A careful study of these will aid you very much.

In the duties of the laboratory, as you do not specify them, let me advise you to watch carefully what you are shown and try to do the same. There are many books on prosthetic dentistry which give com-

plete instructions for the laboratory, including casting technic, direct and indirect. Here again you can secure assistance from the manufacturers of casting equipment.

To be of any help at the chair you must be constantly on the alert and have ready for instant use instruments, medicaments, dressings, etc., such as are used by the doctor. Pay heed to his method of doing things and then learn to anticipate his wants. Do not forget that the patients should receive your attention as well as the doctor; be quick to realize and supply any want on their part—they are human and will appreciate your attention.

I do not know of any dental assistants' society in New Hampshire. Perhaps a letter to the General Secretary of the American Dental Assistants Association, Anna H. Sykora, 110 West 40th St., New York City, will bring more information. It is not necessary to be graduated from a dental assistants' school to join a society.

I am delighted that the Questionnaire has made its reappearance in The Dental Digest. I have missed it very much. I trust your readers will send you lots of questions that will be of benefit to us all, and I wish to contribute the following. What do you think the dental assistant should do, first of all, in the dental office in order that she may be of greater value in her service? I am employed in an office located in a professional building; I meet a number of the assistants there and of course we talk over some of our problems. I find that each office has its own duties and that what an assistant does in one is not required in another. For instance, my doctor does not want me standing at his elbow every moment of the time that the patient is in the chair, and I am told by some of the assistants that their doctors require their assistance every minute, that they have to hand them every instrument used, etc. I carefully read the articles published about the duties of the dental assistant. Please tell me how a dental assistant can do so many things if she must stand at the chair all the time. I want to be efficient in my service. I think that the calling of the dental assistant offers wonderful opportunities for real service, so what must I do to be really efficient and helpful?

M. L. B., Boston, Mass.

First of all, in any dental office the assistant should do all in her power to conserve the dentist's valuable time. That is the most important thing. Just how she can best accomplish this necessarily depends upon the type of office, the class of patients and the doctor's methods of procedure. In a dental office the only source of income is the time employed by the dentist in direct service to his patients, hence in so far as possible none of the dentist's time should be wasted in per-

forming such tasks as can best be cared for by his assistant or assistants. This is the reason for the calling of dental assistant.

Your particular duties must necessarily conform to the requirements of your office. You have a splendid opportunity to do many of the things that go toward conserving your employer's time, as you are not constantly busy at the chair. In those offices where the dentist needs assistance at the chair every moment, there is usually another young woman employed who cares for the many other duties, or there should be.

I know there are dentists who do not seem to realize that their "time is money" and waste much of it doing things about the office that can better be taken care of by an assistant. However, again I repeat, do not miss any opportunity to relieve your employer of the details of the office conduct and you will be rendering service which is most important and profitable to him.

Health Suggestions by Elsie Pierce

Believing that the principal requirement of the young woman employed in a dental office should be health, in order that she may properly fulfill the duties of her position, a series of brief articles on this topic will appear from time to time in this department. We hope they will aid the dental assistant to maintain good health and vitality in the close confinement of her daily occupation.

Fresh Air. Fresh air and proper ventilation are all essential to good health. Approximately one-fifth of pure air is oxygen, which is so necessary to life; therefore, it is not difficult to understand the necessity for all the pure air one can breathe. We should have fresh air in the home, in the office, in our recreations, night and day, awake or asleep.

Windows should be adjusted so that there will be constant ventilation. Open some at the top, others at the bottom. If possible, all windows should be opened wide for a thorough airing of the rooms in which you live and work at least once a day, or oftener according to the weather. Sunshine is a close second to pure air; allow as much of it to shine in as possible. Try to be in the sunshine for a period of each day. Spend a portion of your lunch hour in the open and walk at least a part of the way between your home and your office. Exercise out of doors. In good weather take part in outdoor activities, such as tennis, golf, hiking, horseback riding. Outdoor camping parties are wonderful. Get close to good old mother nature whenever possible; make friends with the birds, flowers and little people of the woods and

meadows. Learn to know and understand the language of the babbling brooks, study the trees and plant life, and you will return to your work a new being.

Clothing plays an important part in health. The skin must have air, therefore keep the skin thoroughly clean and wear loosely woven garments. In winter a temperature of approximately 70 degrees should be maintained indoors, permitting the wearing of light-weight clothes. On going out put on heavy outer garments. Do not allow the feet to become wet or remain cold. Wear sensible shoes; high heels and tight footwear should not be worn during business hours, and they are detrimental at any time.

As for the hair, cleanliness is essential. The pores of the scalp must be kept in a healthy condition if you would have a good head of hair. Regular shampooing, scalp massage, gentle brushing and fresh air will do much for your "crowning glory."

If you do not have much opportunity for play or pastime in the open air or lack proper ventilation in your office during the day, you can have plenty of fresh air at night when asleep. We spend a third of our lives in bed, or should if we follow the "eight hours for sleep" rule, and the bedroom windows should always be open. In winter plenty of bed clothing should be used, also window screens if necessary, to shield the sleeper from draughts. Sleep out of doors whenever you can. Night air will not hurt you; on the contrary, it will refresh and rest you.

Finally, do not breathe through your mouth. Always breathe through the nose, slowly, regularly, deeply. A few moments night and morning consumed in breathing exercises either in the open air or before an open window will work wonders. Lungs must have proper exercise and the blood thorough oxygenation if good health is to be maintained.

Clinic Club

OF THE

EDUCATIONAL AND EFFICIENCY SOCIETY FOR DENTAL ASSISTANTS,
NEW YORK

On Monday evening, January 19th, twenty members of the Educational and Efficiency Clinic Club gathered at the Library of the Hamilton National Bank, 132 West 42nd Street, New York, to witness a demonstration by the Orthodontic Section of the Club. An ingeniously-made bib for catching bits of plaster when taking impressions, methods of shaping bands and many helpful suggestions, within the scope of the assistant, for making the work pleasanter and easier

for the patient and the operator were displayed. Mae Bennett and Ann Marvel were in charge. Anna Neulinger explained an excellent method for preserving extracted teeth to be used for research and educational work. This exhibit was added to the Chair Assisting Section.

It was decided that the Laboratory Division should exhibit at the February meeting. In this section is included the work recently constructed by the members of the Laboratory Class conducted by the Society, consisting of various types of bridges and plates. There will also be a demonstration of the different steps in the carving and casting of the gold inlay and the pouring and separating of plaster models.

Arrangements were completed for the clinic to be given before the First District Dental Society on February 2nd at 4 P. M. at the Academy of Medicine, 17 West 43rd Street, New York. The clinicians will endeavor to show the many ways in which a capable dental assistant can efficiently assist the dentist and add to the comfort of the patient. Plans for future clinics at coming conventions also were discussed.

The Club meets on the third Monday evening of each month from October to May, inclusive, at 7:30 P. M. The next meeting will be held on February 16th at 342 Madison Avenue in the office of Dr. Short. All members of the Society are cordially welcome.



EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

An optimist is one who approaches a pencil sharpener with confidence.

The modern test of will-power is to work cross-word puzzles or leave them alone.

(Mr. Newrich)—Now be sure you get a good-looking nurse for the baby.

(Mrs. Newrich)—Why? What's the idea?

(Mr. Newrich)—I want him to have police protection in the park.

Man has little chance. When he loses faith in Santa Claus he buys stocks that promise 20 per cent.

"The doctor said he'd have me walking again in two weeks."

"Well, didn't he do it?"

"He did, indeed. I had to sell my auto to pay his bill."

(Jack)—May I hold your hand?

(Constance)—Of course not! This isn't Palm Sunday.

(Jack)—Well, it isn't Independence Day, either.

A citizen is one who pays taxes to redeem bonds he sold himself to raise money to lend to Europe.

Well, you can still distinguish the sexes by the way a man scratches a match.

(Mrs. De Peyster)—I wish to say, doctor, that the prescribing of a mustard plaster for a woman of my social position is nothing short of impertinence. And that's that!

As to America's sense of humor, observe the kind of cars some people put locks on.

(Friend)—How are you getting along at home while your wife's away?

(Joblots)—Fine. I've reached the height of efficiency. I can put on my socks now from either end.

"Oh, doctor, do you think the scar will show?" asked the fair young appendicitis patient.

"Can't say, my dear; I'm not setting the styles this year."

What is it molds the life of man?

The weather;

What makes some black and others tan?

The weather;

What makes the Zulu live in trees

And Congo natives dress in leaves

While others go in furs and freeze?

The weather.

Old-time cattle men were good judges in their line, but they couldn't look at a calf and tell you offhand how much chicken salad it would make.

DOING HIS CROSS-WORD STUFF

The man stood on the railroad track—

A fast train hit him a helluva crack.

When he came to he found himself

In a hospital on a shelf.

And lo! the first words he said were these:

"A word—nine letters—meaning cheese."

GOOD ADVICE!

If Europe would improve her state, she'll have to drop the ancient hate. The people of the Old World lands all carry shotguns in their hands, and glare across the border lines in search of riot or its signs, and then, for any cheap excuse, they turn a warlike circus loose. They ought to send some delegates to see how these United States and Canada, fair dame of snows, dwell side by side nor come to blows. No frowning armies guard the line, no forts are there, no bullets whine; no battleships watch either shore with threats of violence and gore. Old Uncle Sam, he waves his tile, and views our neighbor with a smile, and Canada, she looks at him, and would not rend him limb from limb; "You are a good old scout," she sighs, with warm affection in her eyes; "And you're a peach," says Uncle Sam; "you suit me better far than jam." To Canada our voters go, to wade around amid the snow; they're welcomed there like Santa Claus, so long as they obey the laws. Canadians cross o'er the line, and always find the "Welcome" sign; we bid them all remove their wraps, and stay eight months, or twelve, perhaps. When Europe's countries cease to glare across their border lines and swear, and swap the lion for a lamb, like Canada and Uncle Sam, the griefs that rack their souls today will shrivel up and blow away.—Walt Mason.

DIETETICS and HEALTH

Diet As Applied to the Teeth*

"Gourmands dig their graves with their teeth."

The bees have, for thousands of years, aroused the admiration and interest of man. They have been cultured since the time of the ancient Egyptians, and inscriptions on tombs show that they were highly revered. They have been cited by statesmen as having a model social system, with government by a single ruler, the queen. Poets, philosophers, and scientists, among whom may be mentioned Vergil, Aristotle, and Pliny of the Greek and Roman period, and Réaumur and Maeterlinck of more recent times, have eulogized the bees as unique among insects and have spent years of their lives in studying them. They have sung their praises and set forth their good qualities before mankind as an example worthy of emulation. One of the marvelous instances in the life of the bees is their method of feeding their young. There are three kinds of bees in a colony: the queen, the workers, and the drones. The drones are the males. The queen is the true female of the hive. She is fully developed and resembles the worker except for her larger size. Capable of laying five thousand eggs a day, she can increase the number of workers and drones in her tribe enormously, but she jealously guards her sovereignty and permits no contemporary ruler in her domain. Under certain conditions, however, because of loss of the queen if she goes away with a swarm, or when old age comes upon her and her functions fail, or if she dies, a new queen must be reared. The workers, which are undeveloped females, make up the principal part of the population, do all the work in the hive, rear and nurse the young, and gather the nectar and pollen in the fields. The bees can raise a new queen at will from the same egg that might have become a worker by means of a special diet which is fed to the larva when it hatches from the egg. The larvae of the working bees for three days are given a milky food prepared from honey and pollen, partly digested. Afterward they receive pollen and honey undigested until the sixth day, when their cell is sealed. If a queen bee is to be developed, the larva is fed on the very finest and most perfectly

* From Dr. Thoma's Book, "Teeth, Diet and Health."

digested and concentrated food, called "royal jelly." She receives this during the entire period of her larval state (five and a half days), and her cell, before it is closed, is half filled with the precious mixture. The discovery that the bees can produce from a female egg either a working bee of comparatively small size, or a queen bee, fully developed and larger, by different feeding, shows what an important part food plays in development of the young and what great results might be achieved if we should but study and apply the hidden truths of diet.

RULES FOR EATING

One should form the habit of eating properly. The following short rules may be found helpful:

When you sit down to your meal, be at peace with yourself and all who are with you.

See that you have plenty of time and do not feel hurried.

Eat hard foods, masticate them well, and get all the taste you can out of them. Do not soak your food in milk, nor lubricate it with butter, nor wash it down with water. Nature provides us with saliva for this purpose.

Food should be of the right temperature. We drink and eat many things that are too hot. The child will refuse food that is too hot, and, if he is forced to take it, it will hurt the delicate membranes and cause suffering.

The evils of overeating become evident in adult life. Be moderate in your eating and stop when your appetite says, "Enough!"

Finish your meal with cleansing food, especially when you will not have an opportunity to brush your teeth at once.

Eat no food except at regular meal times, but drink plenty of water, especially in summer.

Influence of Refined Sugar

Sugar and all other sweets furnish food for the bacteria which produce decay. The worst time to eat sweetmeats is between meals, and the abominable practice of some parents of giving their children candy as a bribe to induce them to go to sleep is a perfect method of inviting dental caries, according to Dr. Kurt Thoma. The greatest harm, however, is done by the sugar when it is taken up by the body and begins its attraction of mineral salts. Free sugar is not a natural food, and the idea that children, or adults, for that matter, crave sugar because it is needed by the body is not based on sound reasoning. Contrary to prevailing opinion, sugar is not a food necessary to the development or nourishment of the body. Under certain conditions it

forms an easily absorbed emergency food, which is valuable after exhaustive exercise, but in normal life all the sugar needed by the growing child or the adult is formed from starchy foods in the process of digestion. A so-called craving for sugar is, in fact, a desire to indulge in the pleasure of its flavor, which in time leads to the formation of a habit that is most difficult to break, especially in children. A child who has never been permitted to indulge in sweets will eat cereal without sugar with as hearty an appetite as the one who covers his plate of oatmeal with it. It should be repeated that free sugar is not a natural food. Nature does not supply any food in such concentrated form, but man manufactures it from sugar cane, sugar beets, or the sap of the sugar maple. Primitive man's only supply of sugar was honey, and honey is made by the bee for the bee. However, if one's children have already been brought up with the sugar habit, one can at least replace the refined sugar used in most candies and cooking with brown or unrefined sugar, maple syrup, honey, or sweet fruit, such as figs, dates, and raisins.

Recently the writer went to see a little boy at his home. The writer was offered chocolates, and so was the boy. He accepted with great pleasure and said he was very fond of them. When asked how many pieces of candy he had had during the day he answered, "Only six." Apparently his mother did not consider that too much. Now, this boy was only four years old, he was thin and appeared underweight, and when the writer looked at his teeth he saw a most pitiable condition. The writer mentally compared him with his own boy of the age of five, who has never eaten candy and whose teeth are without blemish.



FUTURE EVENTS

You are cordially invited to attend the next monthly meeting of the AMERICAN STOMATOLOGICAL ASSOCIATION, NEW YORK STATE SOCIETY, to be held on Thursday, February 5, 1925, 8:30 p. m. at 50 West 88th Street, New York City.

The subject of the evening is *Rhinology in Relation to Stomatology With Special Reference to Chronic Antral Infections*, by Samuel I. McCullagh, M.D., F.A.C.S.; discussion by Louis A. Coffin, M.D., Edward S. Pope, M.D., Ferdearle J. Fischer, D.D.S.

HOMER E. SMITH, M.D., F.A.C.S., *President*,
111 East 39th St., New York City.
ALFRED J. ASGIS, Sc.B., D.D.S., *Secretary*,
Aeolian Hall, 33 West 42nd St., New York City.

The fifth session of the WESTCHESTER DENTAL SOCIETY will take place at the Yonkers Chamber of Commerce, 35 South Broadway, at eight o'clock, February 17, 1925. Dr. William H. Leak will discuss: *The Care of Children's Teeth*. All ethical dentists are invited.

SIMON MILLER, D.D.S., *Chairman*,
206 Flagg Bldg., Yonkers, N. Y.

A GOLDEN ANNIVERSARY DINNER, as a testimonial to DR. GEORGE C. AINSWORTH, commemorating his fifty years of active service in the dental profession, will be held at the Hotel Somerset, Boston, Thursday evening, February 26, 1925. Reception at six. Dinner at seven.

DR. FRANK A. DELABARRE,
Chairman of Committee,
520 Beacon Street, Boston.

COLLEGE OF DENTISTRY AND ALUMNI CLINIC, February 26 and 27, 1925, at Iowa City, Iowa. General Clinical Program and Three Lectures by Dr. Weston A. Price of Cleveland, Ohio. Make hotel reservations.

DR. RAY V. SMITH, *Secretary*. DR. J. F. SCHOEN, *President*.

The annual meeting of the NEW YORK SOCIETY OF ORTHODONTISTS will be held on Wednesday afternoon and evening, March 11th, at the Hotel Vanderbilt, Park Avenue and 34th Street, New York, N. Y.

WILLIAM C. FISHER, *Secretary*,
501 Fifth Avenue, New York, N. Y.

THE MASSACHUSETTS BOARD OF DENTAL EXAMINERS will hold an examination for registration for both dentists and oral hygienists in the city of Boston, March 9-12, 1925. Full information, application blanks, etc., may be secured at the office of the Secretary. All applications must be filed at this office at least ten days before date set for said examination.

J. N. CARRIERE, D.D.S., Secretary,
Room 146, State House, Boston.

The "Bedouins of Zeta Chapter," XI PSI PHI FRATERNITY, of the PENNSYLVANIA COLLEGE OF DENTAL SURGERY will hold their annual reunion at the Hotel McAlpin, New York City, on March 14, 1925. Alumni not enrolled are requested to address the Secretary or Chairman.

D. H. NOLL, *Chairman*,
33 West 42nd Street,
New York City.

GEORGE B. IRVINE, *Secretary*,
22 South 52nd Street,
Philadelphia, Pa.

The twenty-fourth Annual Meeting of the AMERICAN SOCIETY OF ORTHODONTISTS will be held at the Atlanta-Biltmore Hotel, Atlanta, Ga., April 14, 15, 16 and 17, 1925.

CLINTON C. HOWARD, *President*
Doctors' Building, Atlanta, Ga.

WALTER H. ELLIS, *Secretary-Treasurer*
397 Delaware Avenue, Buffalo, N. Y.

THE PHILADELPHIA DENTAL COLLEGE ALUMNI will hold their 62nd annual reunion in the College Building, 18th and Buttonwood Streets, Philadelphia, on Wednesday, April 15, 1925. Mark this day off on your appointment book now.

F. S. FLUCK, *Secretary*.

The fifty-sixth annual meeting of the VIRGINIA STATE DENTAL ASSOCIATION will be held at Staunton, Va., April 27, 28 and 29, 1925. Headquarters will be at Stonewall Jackson Hotel.

W. N. HODGKIN, *Secretary*,
Warrenton, Va.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold the fifty-seventh annual meeting at the Hotel Ten Eyck, Albany, N. Y., May 13, 14, 15, 1925. All literary exercises, clinics and exhibits will be staged at the Hotel Ten Eyck.

The Society extends a cordial welcome to all ethical dentists.

Make reservations early at the Hotel Ten Eyck.

Exhibitors are requested to address Dr. E. W. Briggs, 1116 Madison Avenue, Albany, N. Y., for space.

A. P. BURKHART, *Secretary*,
57 East Genesee Street, Auburn, N. Y.